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DECEMBER, 1905.

$2.00 per year.
$3.00 with Directory.

TEXTILE WORLD RECORD

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LORD & NAGLE COMPANY · Boston & Philadelphia

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The Annual Report of New Mill Construction for 1905 is Contained in This Number.

The Textile-Finishing Machinery Co.

17 EXCHANGE PLACE, PROVIDENCE, R. I.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING

AND

FINISHING

Calenders for Rolling, Glazing, Chasing and Embossing, also Callenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application

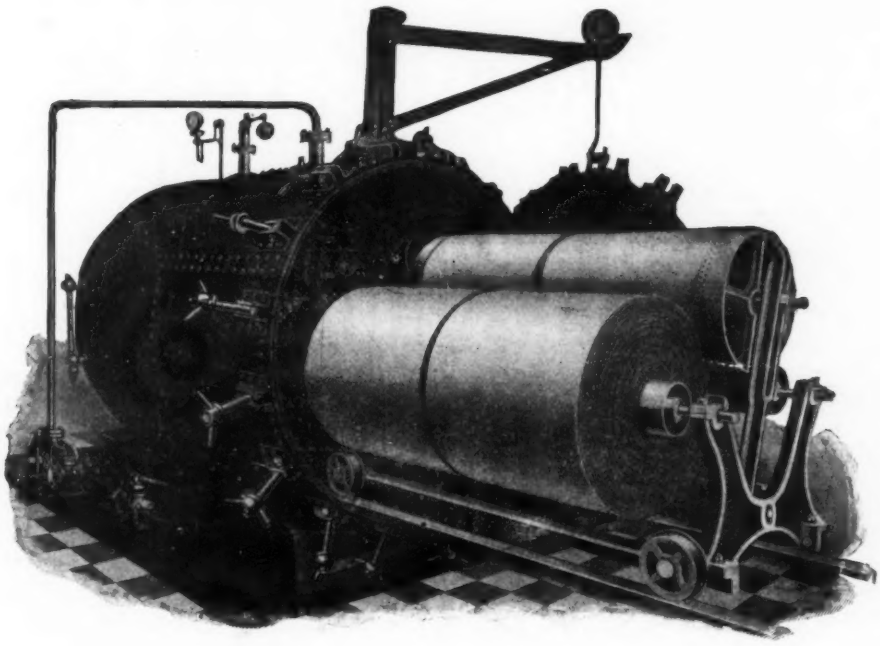
Southern Agent, STUART W. CRAMER, Trust Bldg., Charlotte, N. C., Equitable Bldg., Atlanta, Ga.

Open Bleaching System

OF

JACKSON & HUNT

Patented in the United States, Great Britain and the Continent
U. S. Patent, January 15th, 1901. No. 666,056



H. W. Butterworth & Sons Co.

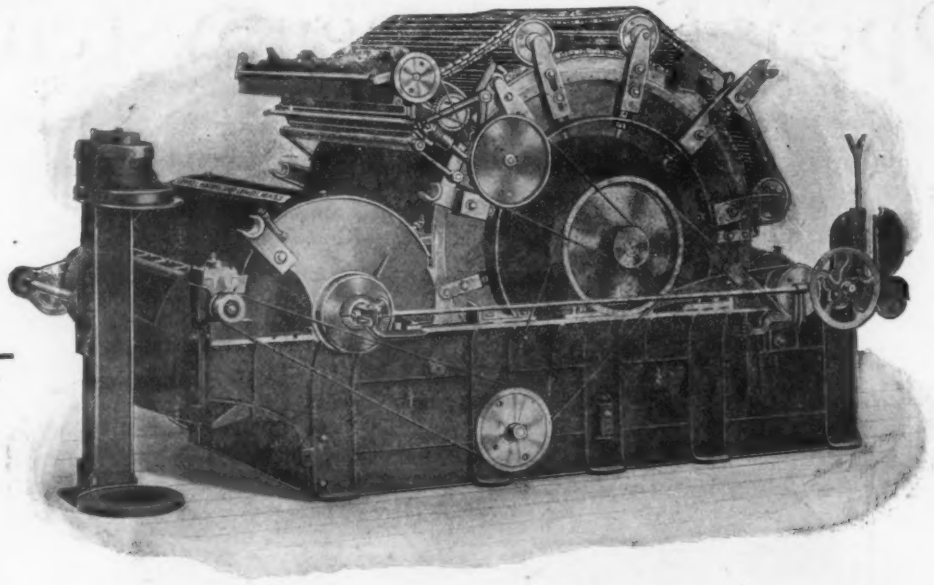
Manufacturers of

Bleaching, Dyeing, Drying and Finishing Machinery

YORK AND CEDAR STREETS

PHILADELPHIA

Sole Makers for the United States



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

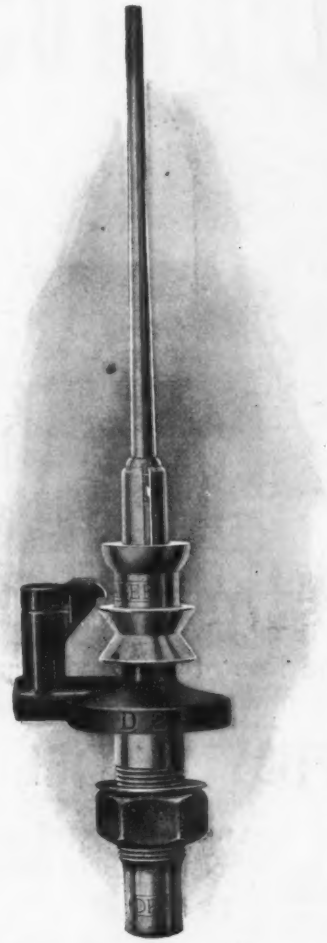
Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.

A New Spindle Improvement



The Rabbeth Centrifugal Bobbin Clutch.

Fits the Bobbin loosely when at rest—allows considerable variation in fit.

Bobbins will all go down into place and Traverse can be lengthened.

Allows easier and quicker doffing—stronger bobbins—less reaming.

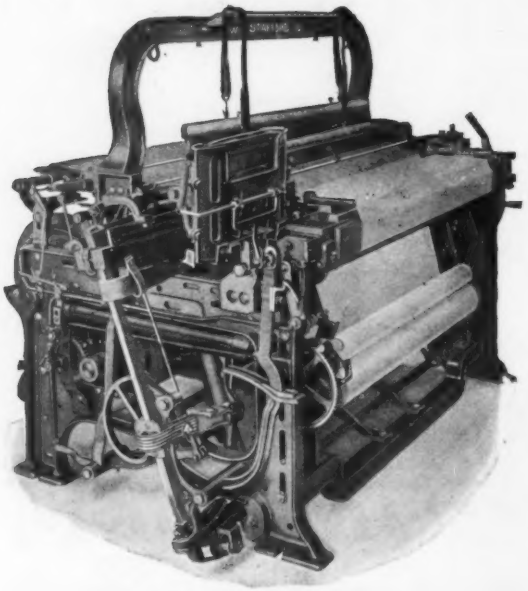
Draper Company, Hopedale, Mass.

We Also Build Looms.

THE GEO. W. STAFFORD COMPANY

WEAVING MACHINERY

READVILLE, MASS.



Ideal Automatic Loom

History Repeats Itself

Our previous successful efforts in the line of improvements in weaving machinery have culminated in our new

IDEAL AUTOMATIC LOOM

Considering quantity of goods produced per weaver, quality of goods, cost of supplies, repair bills, etc., there is no other loom can compare with it for economy of operation.

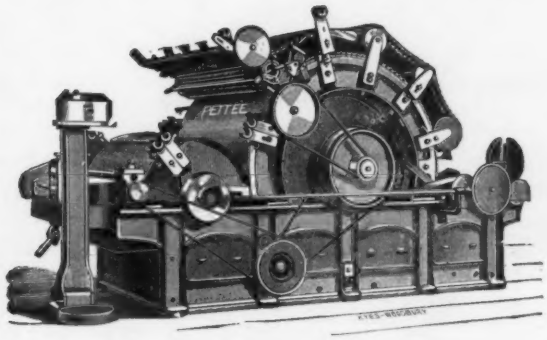
Cop or bobbin filling may be used equally well. One weaver can operate successfully from twelve to thirty looms, and under favorable conditions even more. No reduction in speed. A high grade plain loom as a basis.

Write for further particulars

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



PICKERS,
REVOLVING FLAT CARDS,
DRAWING FRAMES,
RAILWAY HEADS,

SLUBBING,
INTERMEDIATE AND ROVING FRAMES,
SPINNING FRAMES,

SPOOLERS AND REELS.

Shops: { **Biddeford, Me.**
Newton Upper Falls, Mass.

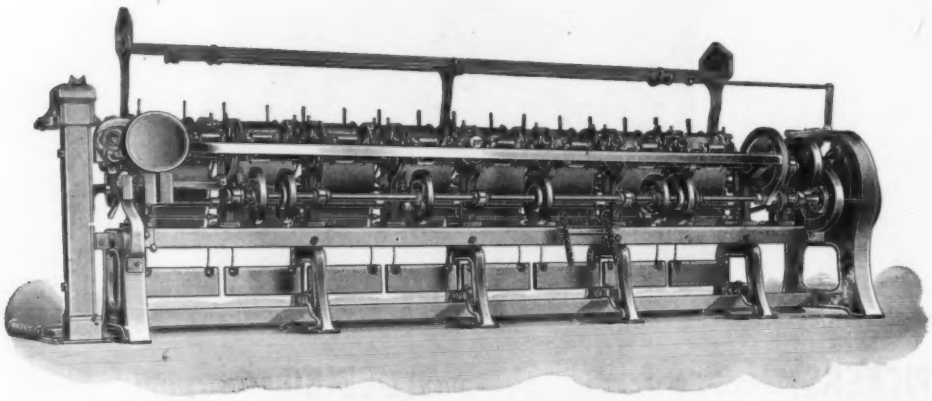
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



The Whitin 8 Head Comber.

Southern Agent, . . . S. W. CRAMER

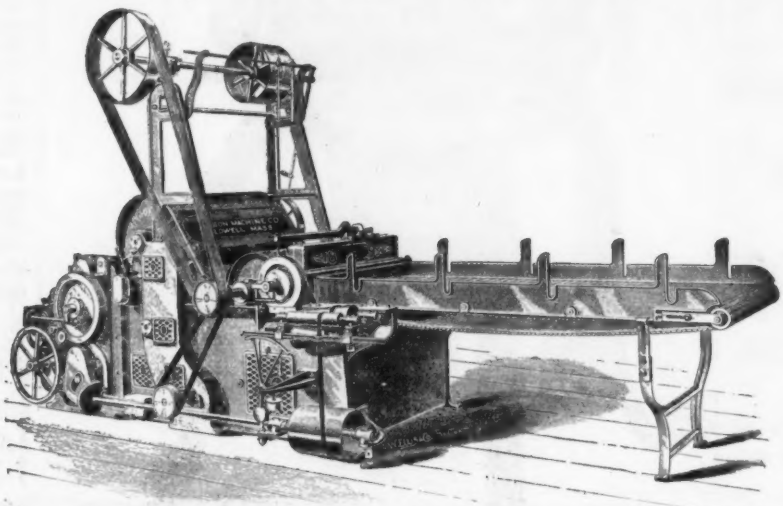
Trust Building, CHARLOTTE, N. C.
and Equitable Bldg, ATLANTA, GA.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines,
Combers,
Railway Heads,
Drawing Frames,

Spinning Frames,
Spoolers,
Twisters,
Reels,
Looms,
Long Chain Quilling Machines.

The Best Pickers

In the Cotton Field nothing equals the DARKY COTTON PICKERS.



In the Cotton Mill nothing equals the KITSON COTTON PICKERS.

KITSON MACHINE CO., LOWELL, MASS.

LARGEST BUILDERS OF COTTON OPENERS AND LAPPERS IN THE WORLD.

STUART W. CRAMER, Southern Agt., Charlotte, N. C. and Equitable Bldg., Atlanta, Ga.

SCOTT & WILLIAMS

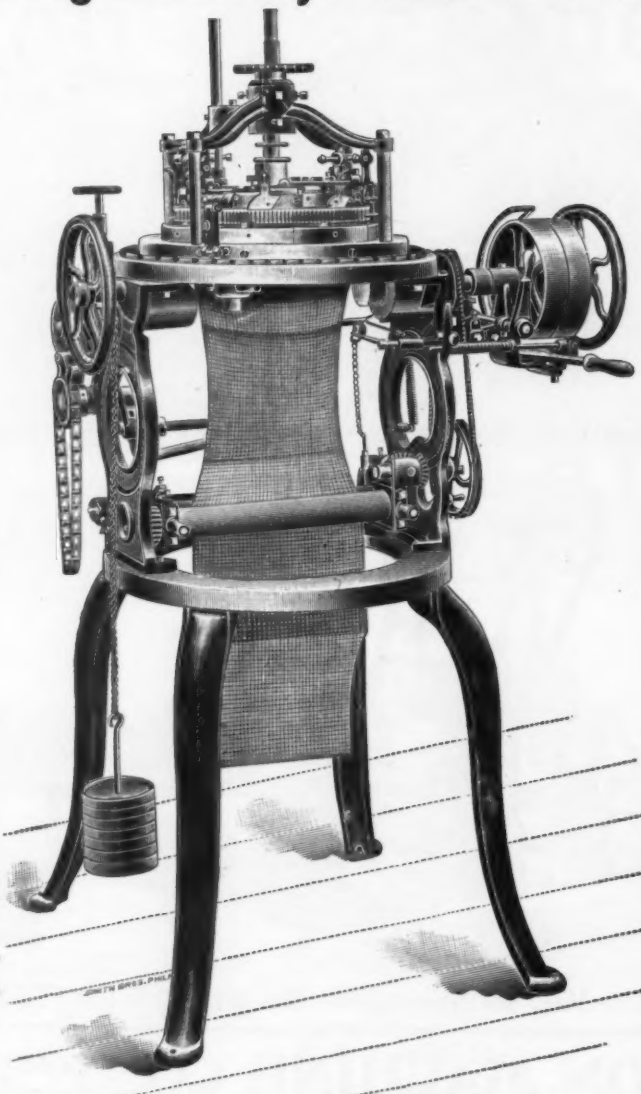
BUILDERS OF

Rib Knitting Machinery for Underwear and Hosiery

The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.



Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

Improved Measuring Device, by actual length knit.

Sizes, 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, four to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters etc.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Antomatic and 7-8 Automatic Seamless Hosiery Machinery.

Full Particulars, Samples and Special Catalogues on Application.

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

PLAN OF NASMITH COMBERS

SCALE 1/8"—1 FOOT.

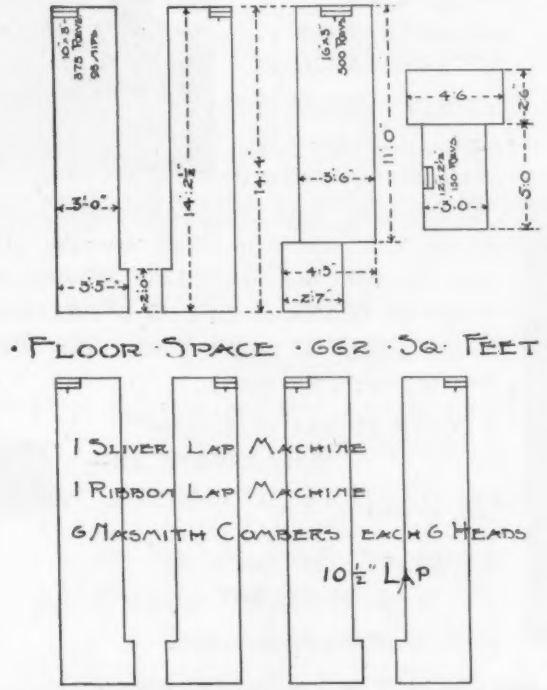
1 Sliver Lap Machine. 1 Ribbon Lap Machine.
1 Set of 6 Nasmith Combers 6 Heads Each 10 1-2" Lap.

PRODUCTION from **4200 to 5000 lbs. per week** set of 6 Nasmith Combers 10½" lap as against
2600 to 2800 lbs. per week on 8 Heilmann Combers 8¾" lap.

SAVING **50% in Power.**
50% in Floor Space. **SAVING**

Double the Production ANY LENGTH OF STAPLE. **Better Quality**

"Does This Interest You?"



"ONE Machine Instead of TWO."

STEPHEN C. LOWE,

AGENT FOR

JOHN HETHERINGTON & SONS, Ltd., Manchester, Eng.,

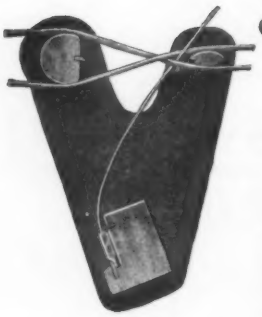
MAKERS OF ALL KINDS OF

TEXTILE MACHINERY and NASMITH'S PATENT COMBER.

Send for Catalogues. **186 Devonshire Street, Boston, Mass.**

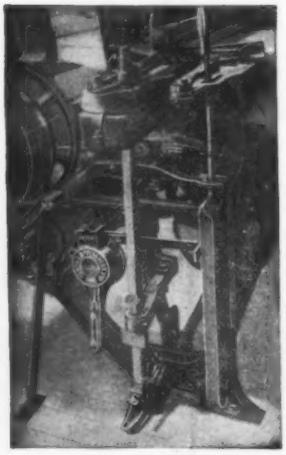
FULL LINE OF PARTS CONSTANTLY IN STOCK.

Absolute Efficiency from Bed-Rock Simplicity

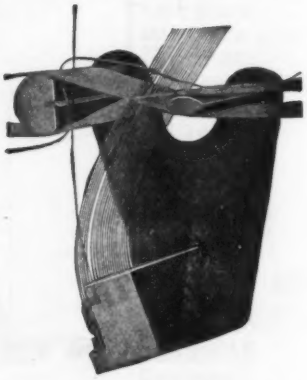


Our **WARP-STOP** controls **TWO threads by ONE spring WIRE, held in a COMB,** engaging the warp in such a way that **the TENSION is UNDER CONTROL,** and **ABRASION of the yarn is AVOIDED.**

The COMBS are RAPIDLY INSERTED, BEFORE or AFTER the warp is in the loom, and are carried in a bar suspended from **the LEASE-RODS** which **ARE NOT FIXED** to the loom side, but **FREE to take their proper positions,** and **ALLOW the NATURAL MOVEMENT of the WARP,** so that **the COVER of the cloth is UNAFFECTED.**



When a thread breaks the WIRE SPRINGS OUT from the comb, thus giving **a CLEAR SIGNAL of the place of the BROKEN END,** and, by striking **a CONTACT SLIP upon which LINT CANNOT COLLECT,** closes the circuit through **a PERFECT KNOCK-OFF, EASILY and RAPIDLY FIXED,** and **actuated by a SPARKLESS current.**



American Textile Appliances Co.

WILLIAM FIRTH, Treasurer.

79 MILK ST., BOSTON, MASS.

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8″ stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery. Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

JOSEPH SYKES BROS., Card Clothing for Cotton.

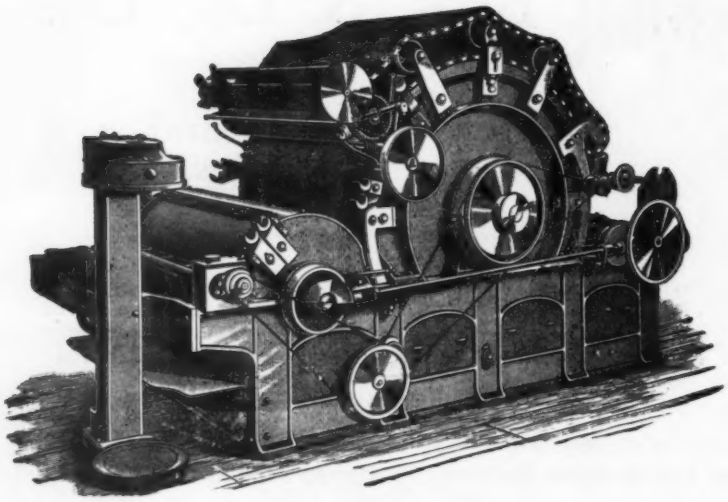
JAMES CRITCHLEY & SON'S, Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'. Grinding Machinery and Emery Filleting.
The Best French and English Combing and Rubbing Aprons.
Harding's Pins and Circles, Varey's Fallers, etc.

MASON MACHINE WORKS,

TAUNTON, MASS.

Cotton Machinery



Cards, Combers, Railway Heads, Drawing Frames, Spinning Frames, Mules and Looms,

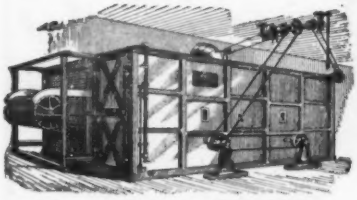
INCLUDING

Plain and Fancy Silk Looms

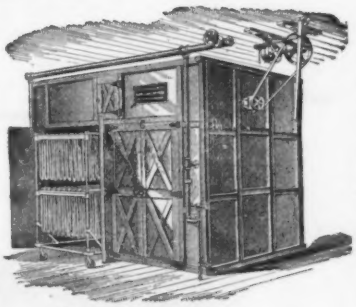
Southern Office, Charlotte, S. C.

"HURRICANE" DRYERS AND FANS

For WOOL,
COTTON STOCK,
YARN, STOCKINGS,
UNDERWEAR,
Etc.

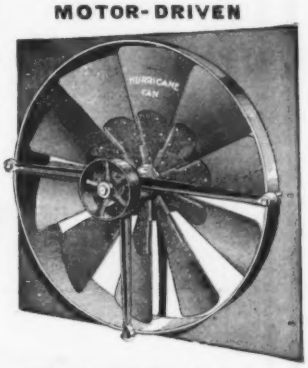


Cotton Stock and Wool Dryer.



Truck Yarn Dryer.

BELT-DRIVEN
MOTOR-DRIVEN



"Hurricane" Fan, Style No. 2.
Write for Catalogues.

CARBONIZING,
BLEACHING,
OXIDIZING, CHROMING and WASHING MACHINERY.

PHILADELPHIA DRYING MACHINERY CO.
6721 Germantown Ave., Philadelphia, Pa.

Fairbairn Lawson Combe Barbour, Ltd.

LAWSON BRANCH,

Hope Foundry. **LEEDS.** **England.**

MAKERS OF MACHINERY FOR

PREPARING AND SPINNING FLAX, HEMP, TOW AND JUTE

AND OF

Special Machinery for the Manufacture of Twines,

ALSO OF

GOOD'S COMBINED HACKLING AND SPREADING MACHINE,
LONG REACH SCREW-GILL DRAWING FRAMES,
CHAIN-GILL DRAWING FRAMES with Apron Head,
PATENT HIGH-SPEED HORIZONTAL AND AUTOMATIC SPINNING FRAMES FOR MANILLA,

AND OTHER

Special Machinery for the manufacture of Rope Yarns and Binder Twine.

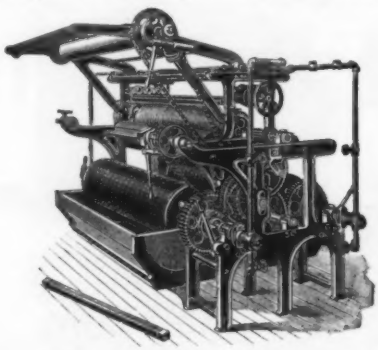
IMPROVED LAYING MACHINES. HASKELL-DAWES TUBING TWISTERS
BROWNELL'S PATENT TWISTING AND LAYING MACHINES FOR TWINE.

Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

PERFECT STEAM LUSTERING

How to Get It—As Told By Us

A short bnt complete description of the best practice in Steam Finishing. Free on request.



74 x 18 Steam Finishing Machine

DURABILITY—EFFICIENCY—CONVENIENCE—ECONOMY

PARKS & WOOLSON MACHINE CO Springfield Vermont

ANNOUNCEMENT.

We have purchased the Woolen Machinery Business of the

ATLAS FOUNDRY & MACHINE CO.
of Irvington, N. J.

(formerly at Newark and Belleville, N. J.), including all the machinery, tools, drawings, patterns, etc., used in the manufacture of the

Parkhurst Burr Pickers, Burr Cylinders, Feed Rolls, Atlas Mixing Pickers, Hair Pickers, Dusters, Feeders, etc.

We have also purchased the business of the

MILLER PRESS & MACHINE COMPANY
of Woonsocket, R. I.

builders of the **"Miller" Rotary Presses.**

The business of both concerns has been transferred to Worcester, where we shall continue to build the machines formerly made by them, in connection with our already large line of woolen and cotton machinery.
All correspondence and parts for repairs should be sent to us at Worcester, Mass.

Curtis & Marble Machine Co.

builders of Wool Dusters, Burr Pickers, Wool Pickers, Fearnaught Pickers, Steel Ring Burr Cylinders and Feed Rolls, Gigs, Nappers, Single and Double Shearing Machines, Brushing Machines, Wet Rolling Machines, Tacking Machines, Worsted Pumicing Machines, Dewing Machines, Steam Lustering Machines, E. Gessner and Miller Rotary Presses, Flock Cutters, Gas Singeing Machines, etc., etc.

WORCESTER, MASS.

July, 1905, with a business growth to such an extent that more room is absolutely necessary.

At your service if you will

Call or write and I will

Oblige you with information of details and practical results on

Bobbin and cop winding and other machinery that is manufactured here and

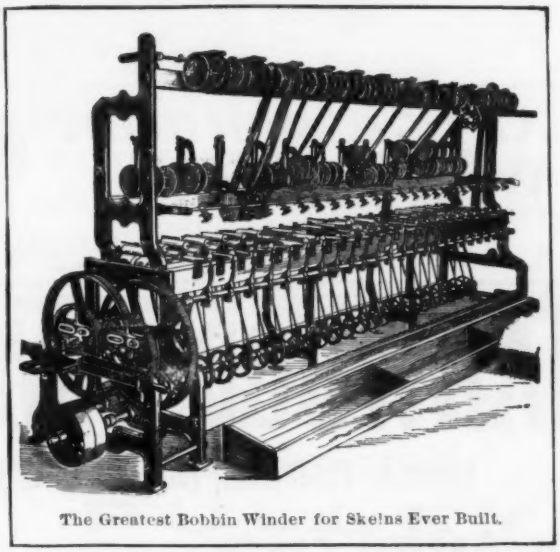
Kept in touch with the requirements

Always producing the work that is correct,

Letting nothing go out

That is not satisfactory before delivery.

Every means are used to



The Greatest Bobbin Winder for Skeins Ever Built.

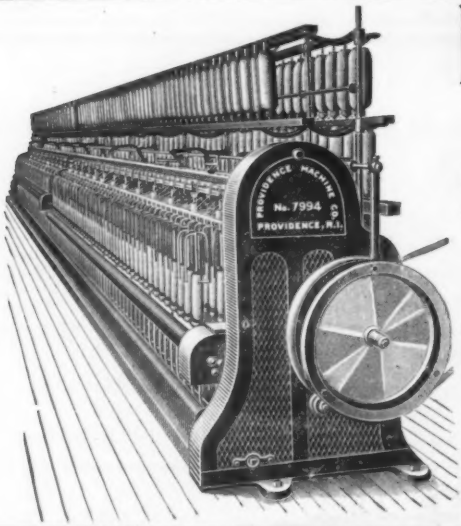
Manufacture winders, spoolers, warpers, beamers and other textile machinery

Up to the standard of reputation

Secured by hard and earnest efforts and guaranteed to give results satisfactory in every particular.

Textile Machinery

2824 N. 4th St., Philadelphia, Pa.



Providence Machine Co.

Manufacturers of

Improved Cotton Roving Frames

Improved Worsted Roving Frames

564 Eddy St., - - PROVIDENCE, R. I.

An Essential to the Weave Room

WE ARE HEADQUARTERS

S. A. FELTON & SON CO. MANCHESTER, N.H.

The Loom Duster

HARWOOD'S MACHINERY

Increases Production, Improves Quality, Decreases Labor Cost.

The Apperly Feeder

FOR SECOND BREAKER AND FINISHER CARDS.

This machine was originally brought to this country and introduced against great opposition, by the founder of this concern, the late Geo. S. Harwood. To-day there are about 15,000 machines of our construction running in this country and Canada. We have greatly improved the machine. It is to-day an efficient, positive and up-to-date feed, and we can offer manufacturers the choice between the ***Kemp Positive Geared Traveler*** and the ***Standard Traveler*** with all other recent improvements.

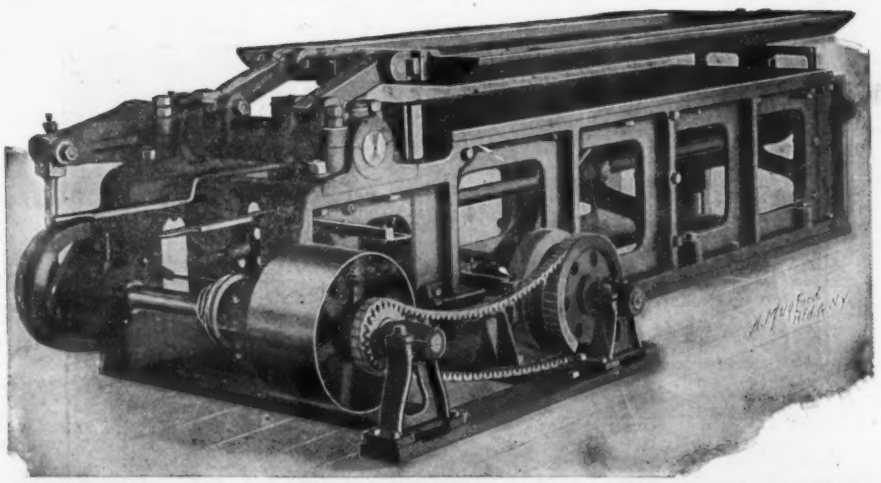
Call on us for particulars and information about all matters relating to Feeding Machinery.

GEORGE S. HARWOOD & Son,

53 State Street, Boston, Mass.

Farrel Foundry & Machine Co.

ANSONIA, CONN.



SINGLE AND DOUBLE FELT HARDENERS.

Chilled and Soft Iron Rolls, Machine Moulded and Machine Cut Gearing, to 20 ft. diameter. Heavy Transmission Machinery, Etc., Etc.
Heavy Castings, in Gray Iron or Semi Steel.

The American

WROUGHT STEEL

PULLEY

Patented in the United States and Foreign Countries.

SEND FOR BOOKLET.

Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
It clamps to the shaft perfectly — keys and set-screws superfluous.
Interchangeable metal Bushings to fit shafts of different sizes.
Particularly adapted to TEXTILE manufacturing.

Sold by the Leading Supply Houses all over the WORLD.

The American Pulley Co.,

29th and Bristol Streets, : : PHILADELPHIA, PA.

"STEEL MIXTURE"
BOILER DOOR ARCHES AND FIRE BOX BLOCKS
TONGUED & GROOVED
PATENT BACK COMBUSTION CHAMBER ARCH
ARCHES MADE FOR ONE OR MORE DOOR OPENINGS
McLEOD & HENRY CO. TROY N.Y. U.S.A.
MANUF'D BY
McLEOD & HENRY CO.
INQUIRIES SOLICITED
TROY. N.Y. U.S.A.

Manufacturers of and Dealers in

WROUGHT AND CAST IRON PIPE
for steam, water and gas.

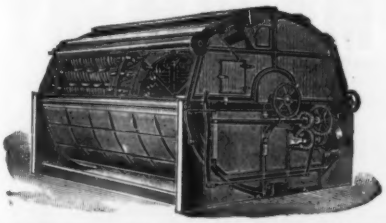
BRASS, COPPER AND LEAD PIPE.

Iron and Brass Fittings, Valves, Etc.
Iron and Brass Railing and
Awning Fittings. . .

Steam and Hot Water Heating Apparatus.
Steam Specialties, Pipe Fitters' Tools, Etc.

PIPE CUTTING A SPECIALTY.

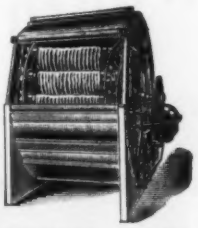
SKEIN AND SLUBBING MACHINES



SAVES

75% in Labor.
30% in Winding.
Steam and Dye Stuffs.
No Friction.
No Tangling.

CAPACITY
50 to 700 lbs per batch.



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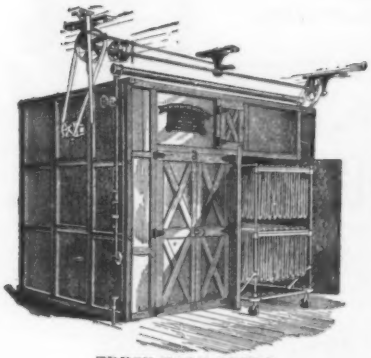

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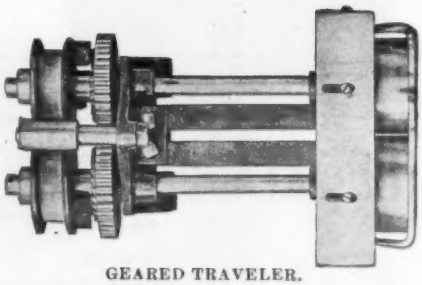

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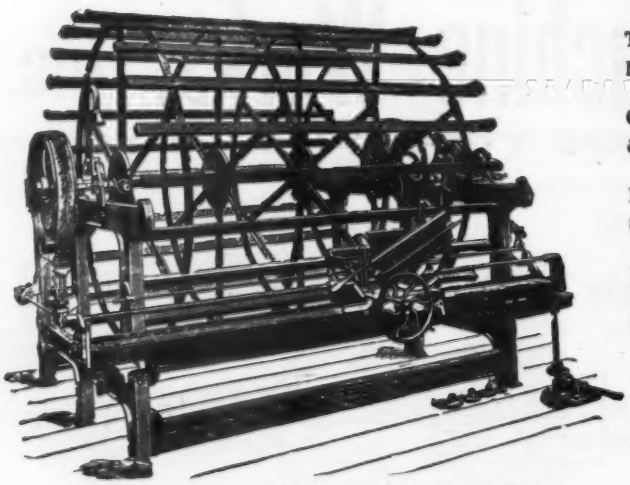

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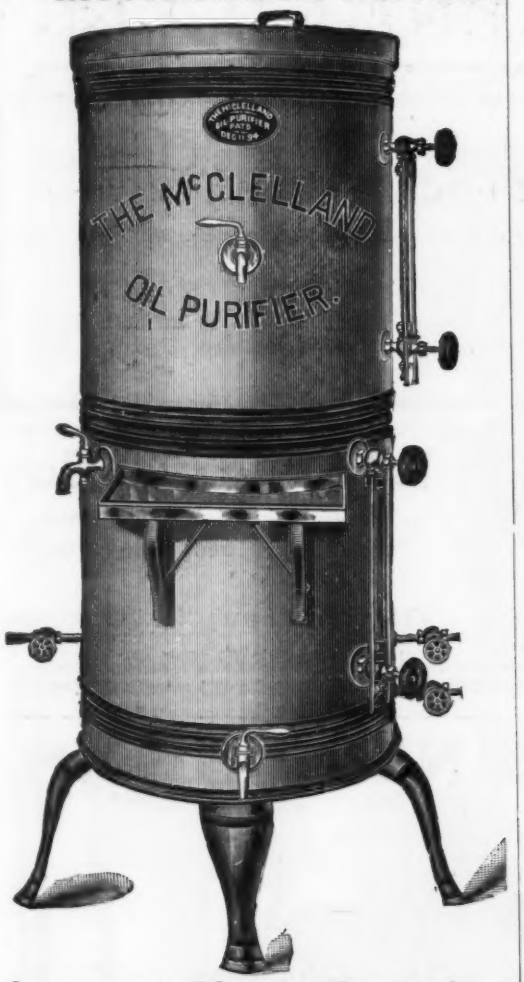

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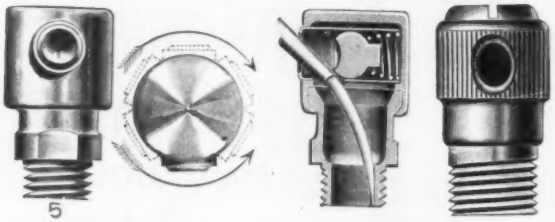

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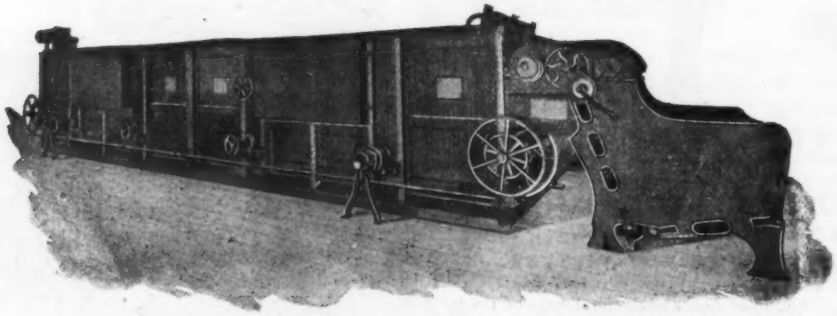

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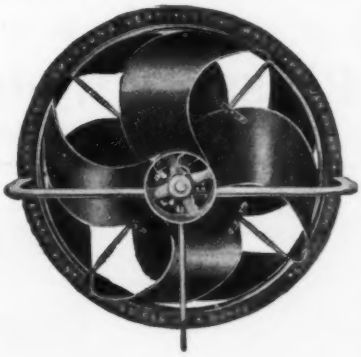

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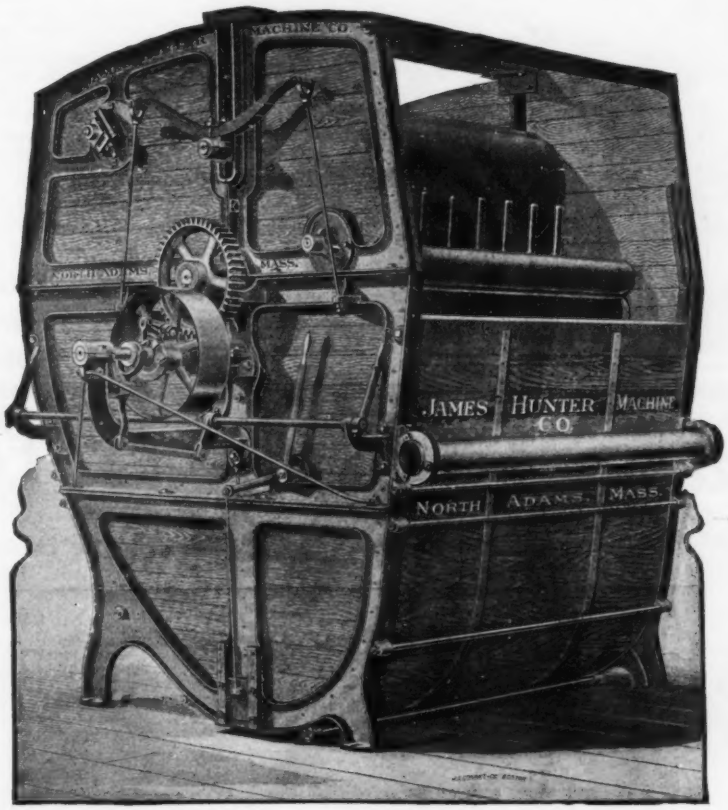

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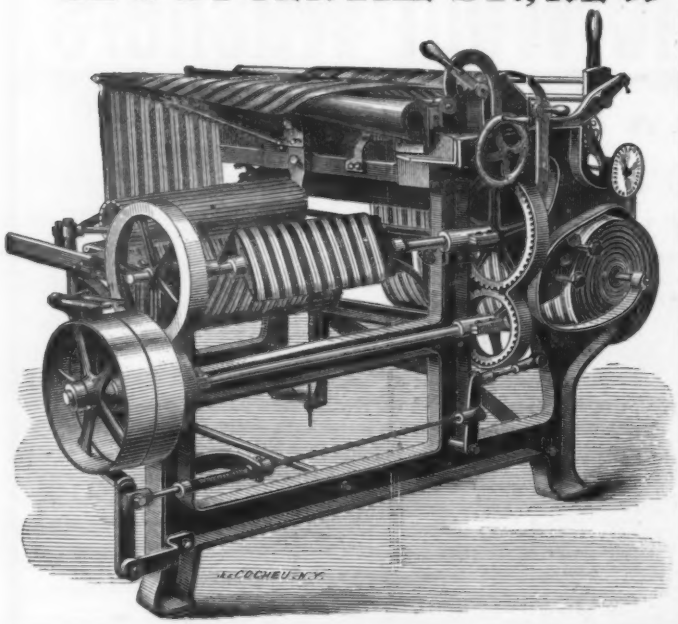

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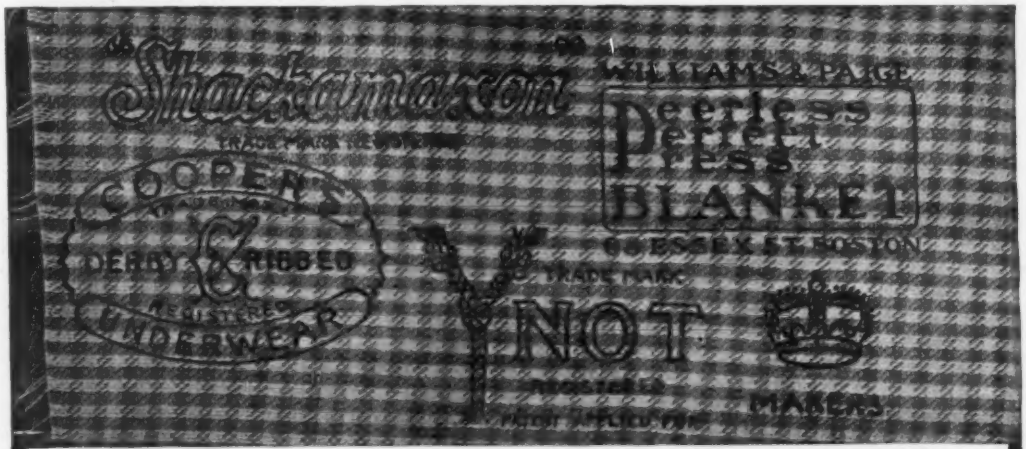

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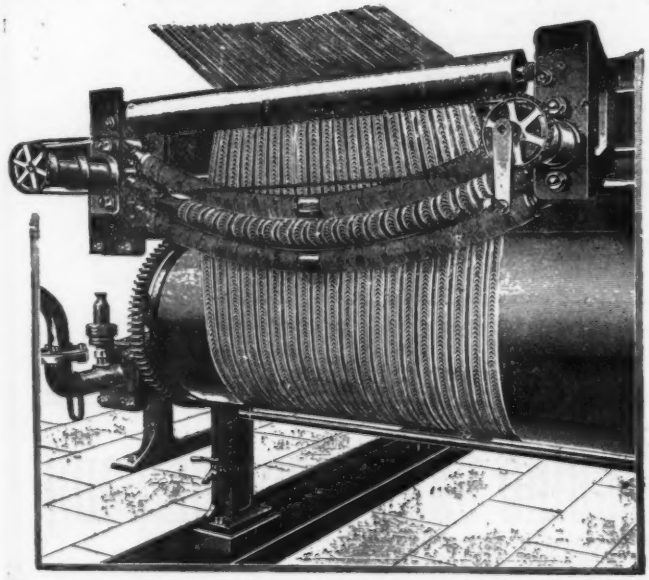

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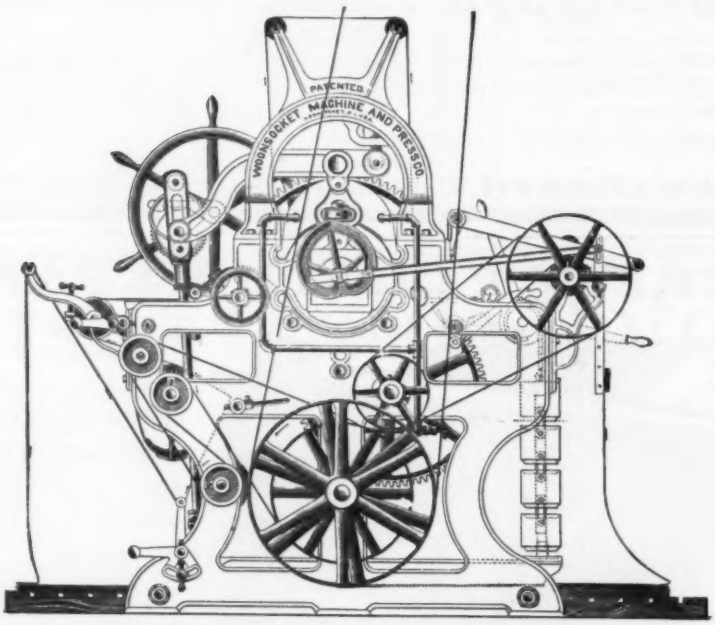

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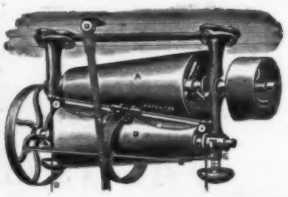

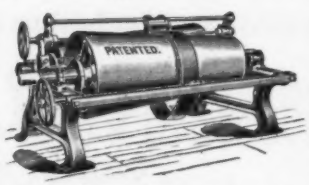

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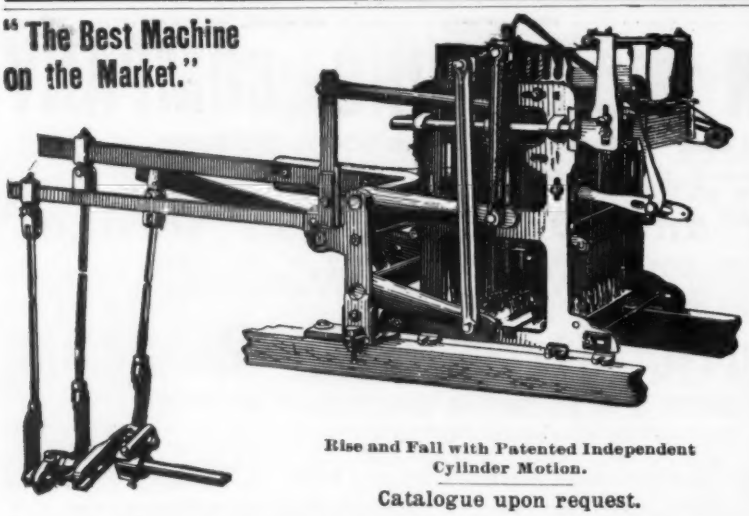

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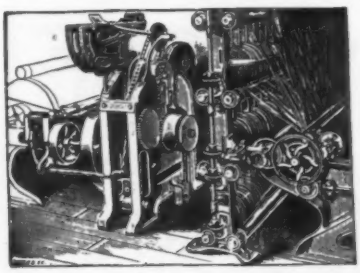

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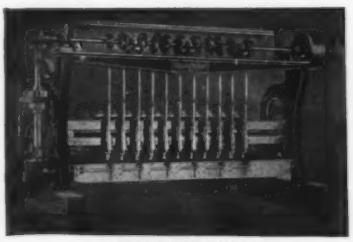

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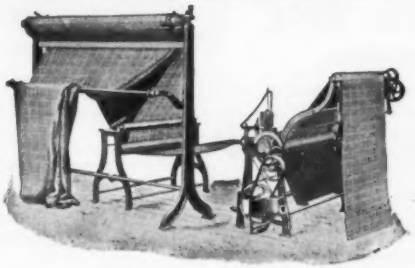

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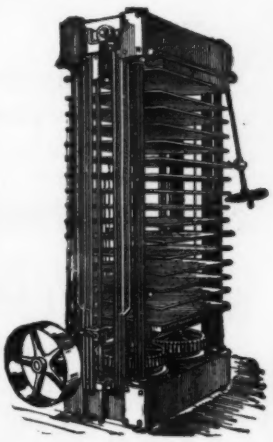

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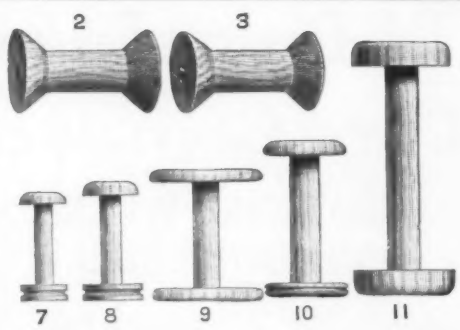
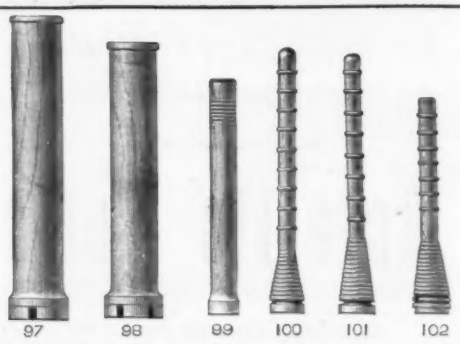
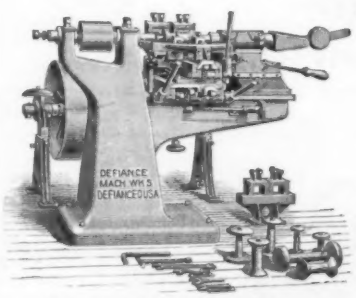




SPOOL AND BOBBIN MACHINERY



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Send for Catalogue and Particulars to
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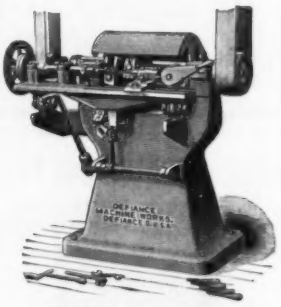

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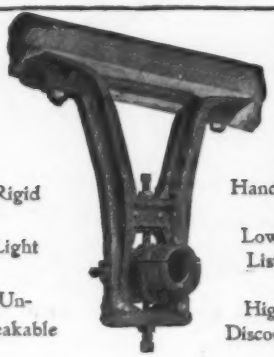

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are especially adapted for use in
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because the frames will not absorb oil, consequently lint will not stick to them
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We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted.

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Excel in HIDE Quality.

We use only lime-cured buffalo hides in our raw hide pickers, and every hide is warranted by the curers to be absolutely sound and of the best quality. We use no inferior hides for any purpose, so that the hide quality of our pickers is the best it is possible to secure.

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Formerly LOOM PICKER COMPANY

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In the Manufacturing of **SPINDLES,**

For Cotton, Woolen, Worsted, Silk and Flax Machinery. Manufacturers and Repairers. Also Flyers, Steel Caps, Bolsters, Steps, Tubes, Etc.

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Manfrs of *BRAIDING MACHINES*

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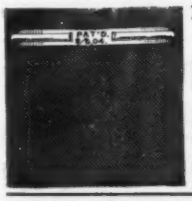

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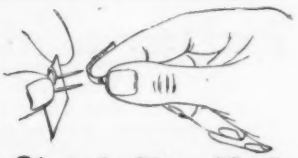

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Their Cost
In Freight.

THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.
BOX SHOOKS and CLOTH BOARDS.

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LIGHT
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Shaw's "Victor" Travelers
Manufactured by
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23 Sabin Street, PROVIDENCE, R. I.

Established 1870

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for WOOLENS, WORSTEDS, FELTS, etc.

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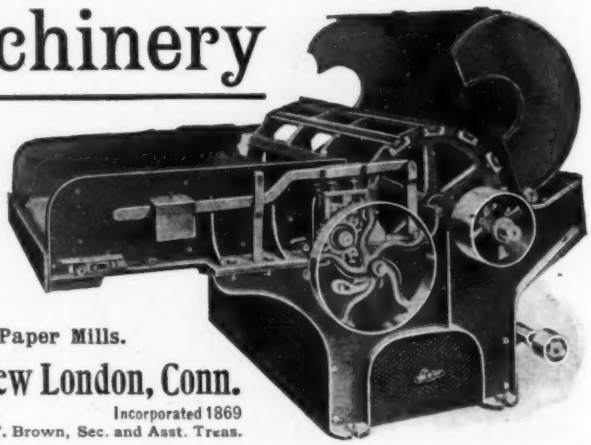

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Cock Spur Feed Roll Mixing Pickers
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Mill and Machine Brushes, for Textile, Paper Mills.

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We build a simple, powerful and very effective machine to remove gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.

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SOLID SASH AND CURTAIN CORDS,

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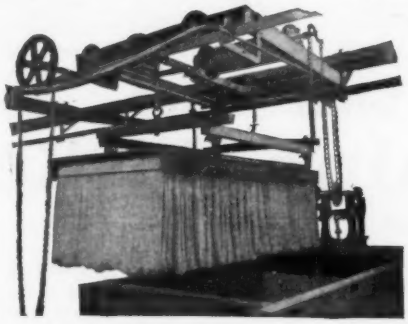
AND ALL BRAIDED FABRICS.

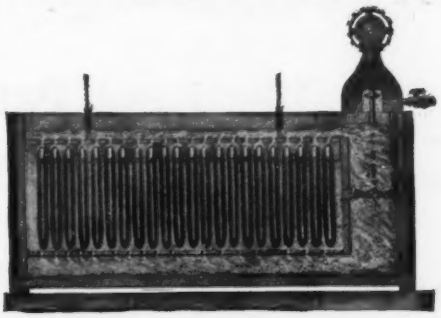
The Hussong Dyeing Machine

Patented Nov. 6, 1900. April 9, 1901. Nov. 29, 1904.

A PERFECT SKEIN DYEING MACHINE



This illustration shows our Compressed Air Hoisting Carriage, with 300-pound Yarn Machine suspended.



Longitudinal Sectional View, showing the circulation of dye-liquor through the yarn when in operation.

Points of Superiority Which We Claim for the Hussong Machine.

Durability, Even Dyeing, Saving of Steam, Saving of Dyestuff,
Saving of 75% in Labor. Makes No Waste Whatever. No Friction on the Material,
Requires but Little Power to Operate,
Leaves the Yarn and Slubbing in its Natural Condition.

Built by the **American Dyeing Machine Co., Office 609 Pearl St., Camden, N. J.**

BEWARE OF INFRINGEMENTS.

FIRE PROTECTION

NONE BETTER THAN THAT AFFORDED BY FIRE BUCKETS FILLED WITH CALCIUM CHLORIDE

It does not evaporate. It does not become foul. It has no effect upon iron. It does not freeze at low temperatures. It is endorsed by Insurance Underwriters.

The Solvay Process Co.'s Calcium Chloride is the best, its freezing point being 54° below Zero, Fahr.

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For Textile, Paper Mills, Etc.

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THE COHNEN

CENTRIFUGAL

Dyeing Machine

U. S. Patent 776,295, Nov. 29, 1904.

Dyes Raw Stock
or
Yarn in Cops, Skeins or Bundles (Warps)

DYES SULPHUR COLORS

without bronzing or streaking and leaves the stock in perfect condition for carding or weaving.

ONLY ONE HANDLING

is required to dye, oxidize and hydro extract ready for the drying room.

The Machine may be seen in operation by applying to the American Agents.

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Specialist in the Manufacture of

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of all kinds. The oldest Cloth Shearing Knife Mfr. in Germany.
American Agents Wanted.

The Lane Patent Steel Frame
Canvas Steaming Basket

MADE WITH OR WITHOUT WOODEN SHOES AS REQUIRED

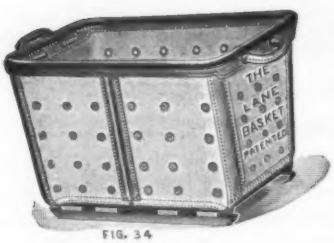

FIG. 34

Adapted to withstand the severe test of steaming better than any other basket, as it is constructed of such materials, and in such a manner as to be unaffected by steam, heat or moisture.

The steadily increasing demand for the Lane Patent Steaming Basket demonstrates the truth of our claims.

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DIXON'S
SOLID CRAYONS

leave no marks after bleaching. Contain no aniline dyes. Are made in ELEVEN colors.
Circular 120-J and Samples Free.

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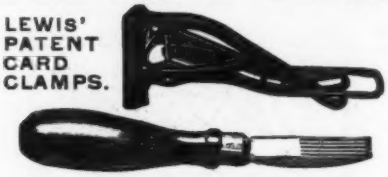
LEWIS' PATENT CARD CLAMPS.



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For Setting Up Bent Teeth of Card Clothing with a variety of all other tools used by Carders and Manufacturers.
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AMMONIATED POTASH SALTS FOR SCOURING.

Dobbins' Palm Oil Fulling Soap. Dobbins' "Fast Black" Soap. Pure Olive Oil Potash Soaps.

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Are invited to ask about our new brand of

Undoubtedly Standard **U. S. ROOFING** **Uuquestionable Superiority**

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Enclosed in Dust-Proof Casing

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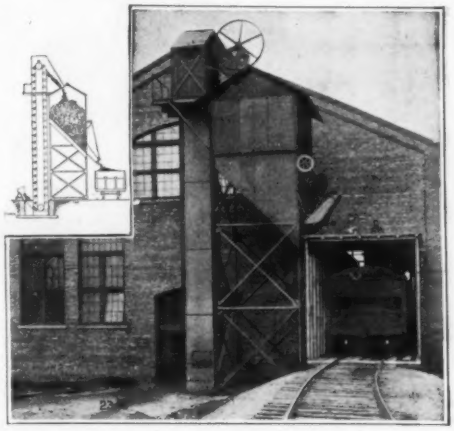

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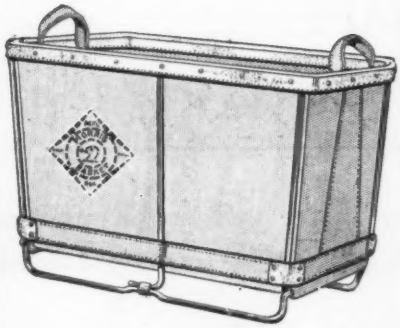

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We now cover the rims of our oblong baskets with our PATENTED METAL TOP which is put on over the duck INSTEAD OF LEATHER.

You cannot afford to buy any other Duck Mill Basket.

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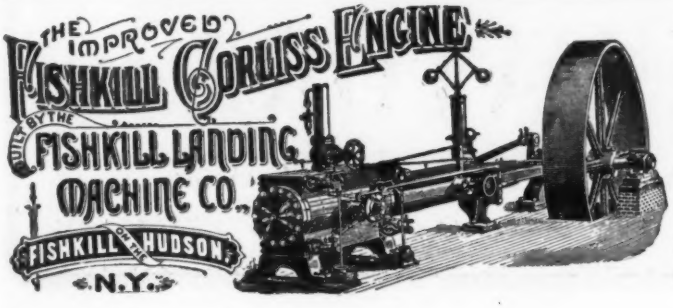

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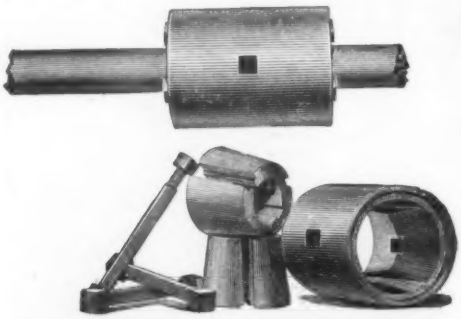
It has NO EQUAL for Close Regulation and Noiseless Operation. Send for Catalogue.



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has a way of holding shafts together, that no other COUPLING can equal.

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SHAFTS,
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and all most approved appliances for the Transmission of Power.

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ESPECIALLY ADAPTED FOR MILL USE.

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ABSOLUTELY THE BEST.

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"BRETON" OIL

The various kinds of woolen goods made, varying as they do in texture, etc., call for varied treatment. No one wool oil is adapted to all kinds of wool any more than one machinery oil is adapted to all kinds of machinery. Hence, to meet this diversity of requirements, we make various grades of Breton Oil. Every brand, however, possesses the same fundamental efficiency. So, in ordering, kindly state what you make, and the proper oil will be supplied.

BORNE, SCRYMSER COMPANY,
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Works, Claremont, N. J.

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THIS TRADE-MARK

on a rawhide pinion corresponds to the Sterling mark on silver—it denotes the highest degree of perfection. New Process Raw Hide Pinions are the recognized standard of excellence. Owing to patent and secret processes of curing the raw hide, they contain much more of the vital fibre than other raw hide, and **wear like iron.** They provide a **noiseless positive drive**—no noise, no loss of power. Get our free booklet for the facts.

We also make accurately cut and planed Metal Gears, in Spurs, Bevels, Internals and Racks.

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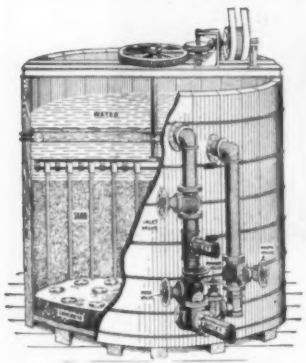
MORRIS & WALES, PHILA.



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FILTERS PRESSURE and GRAVITY

WATER SOFTENERS INTERMITTENT and CONTINUOUS

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the only filter which exceeds its guarantee.

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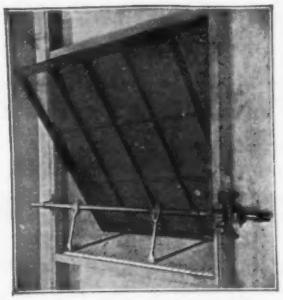
A Matter of Profits



Bad air, sluggish employees—sluggish employees, increased expense. Bad ventilation, bad finance. **Ventilate** with our simple, easy working, Sash Operating Devices. Shifts with ease 1 or 100 sash.

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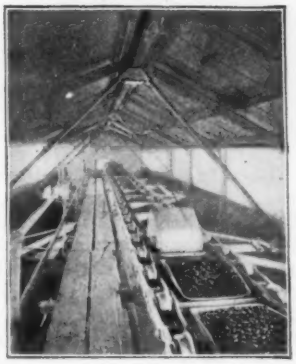
Conveying Machinery of Every Description.



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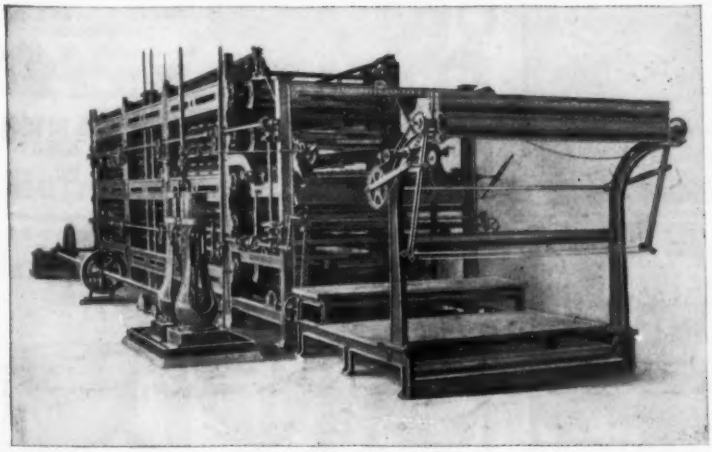

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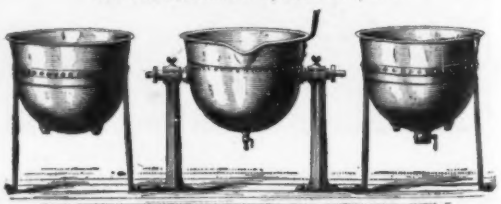

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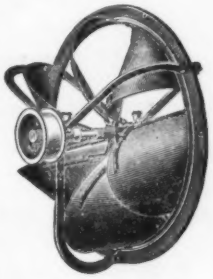

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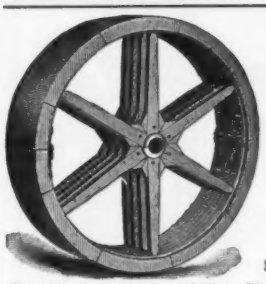

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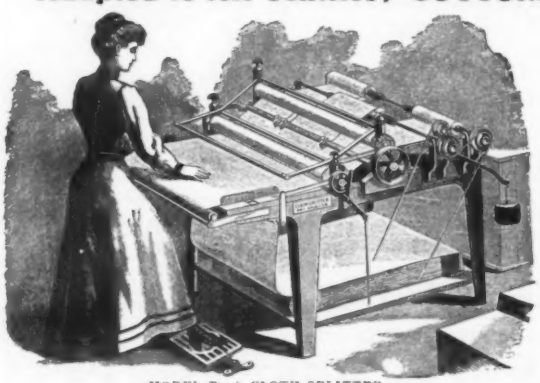

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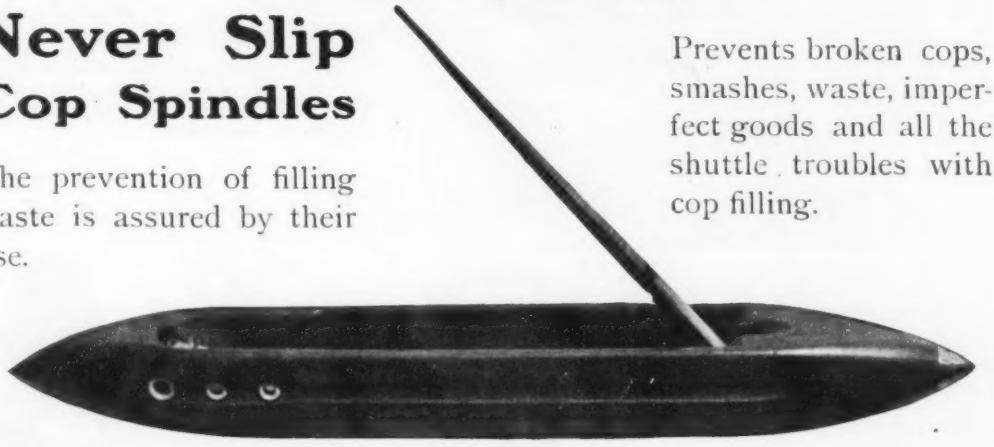

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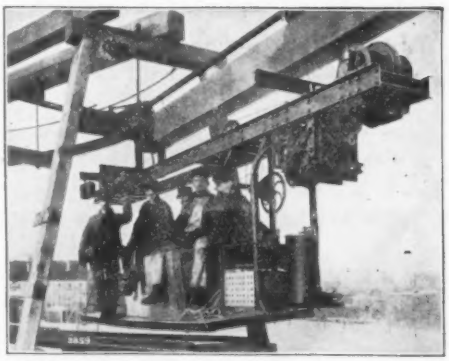

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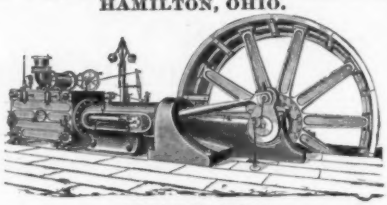

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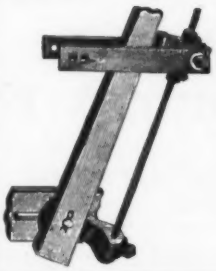

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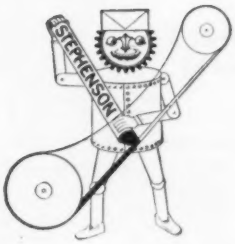

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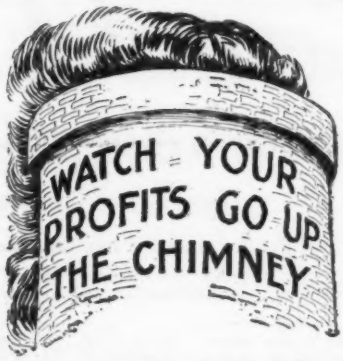

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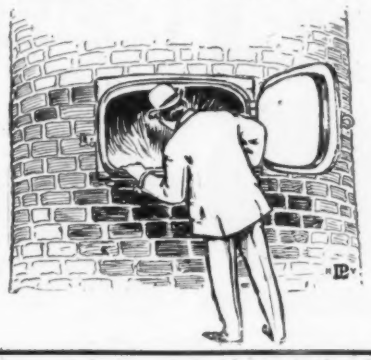

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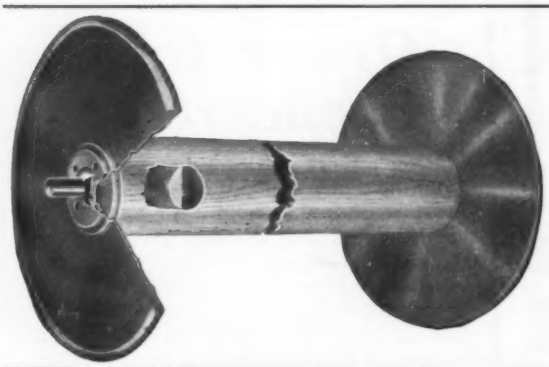

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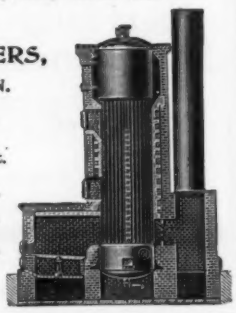

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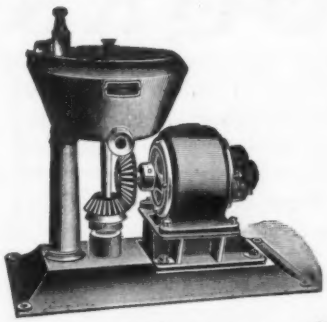

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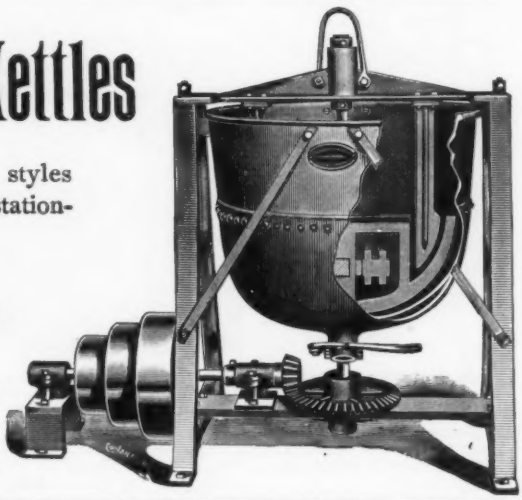

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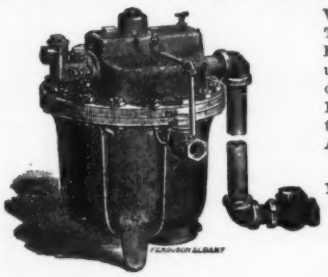

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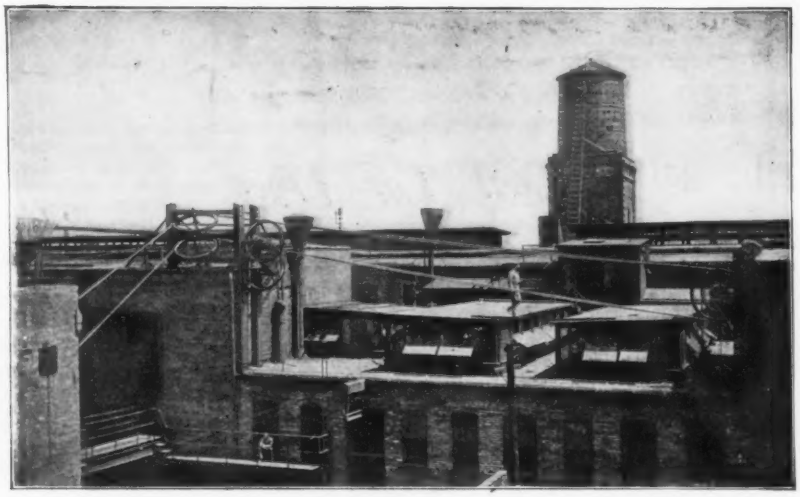

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PART I. Contains a complete directory of all the textile establishments in the United States and Canada. It tells what goods are made, the number of sets of cards, spindles, looms, whether and what they dye or finish, steam or water power, who the selling agents are, the names of the officers, superintendent and buyer.

There are 22 textile maps; gives population of town and railroad connections.

PART II. Is the Yarn Trade Index, containing classified lists of yarn spinners, arranged according to kind of yarn, size and number spun, etc. All the mills with worsted machinery are included in this section.

PART III. Contains classified list of mills doing order and commission work, also dyeing, finishing, bleaching and printing establishments, classified according to the kind of work done, and so far as possible giving width of goods handled; also shoddy, extract and flock manufacturers and wool scouring establishments.

PART IV. Manufacturer's Selling Agents and Dry Goods Commission Merchants, giving the name and address of concern, character of goods handled, different departments, with managers, list of manufacturing clothiers, and suit and cloak manufacturers, giving specialties and buyers names. A list of city offices of textile mills is given.

PART V. Dealers and Brokers in raw materials and stock, including wool and shoddy dealers and brokers, cotton dealers and brokers, factors and buyers and wholesale rag dealers making a specialty of textile interests.

PART VI. Buyers Index of Textile Machinery and Supplies, and statistics showing textile machinery in the United States, giving spindles, looms, knitting machines, etc.

The Directory of the Knitting Trade in the United States and Canada

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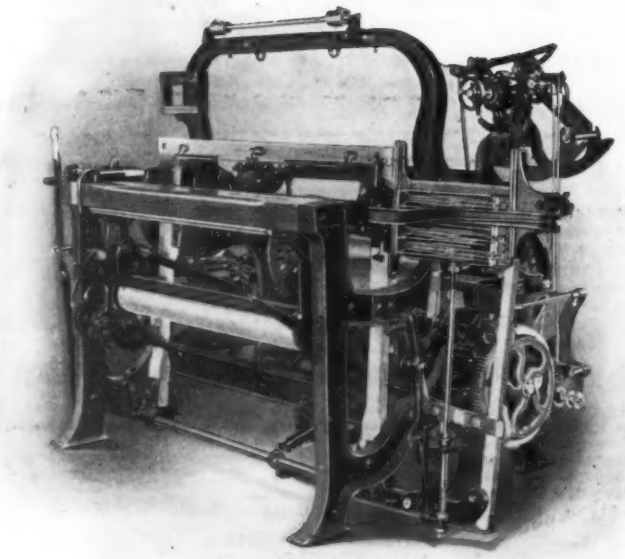

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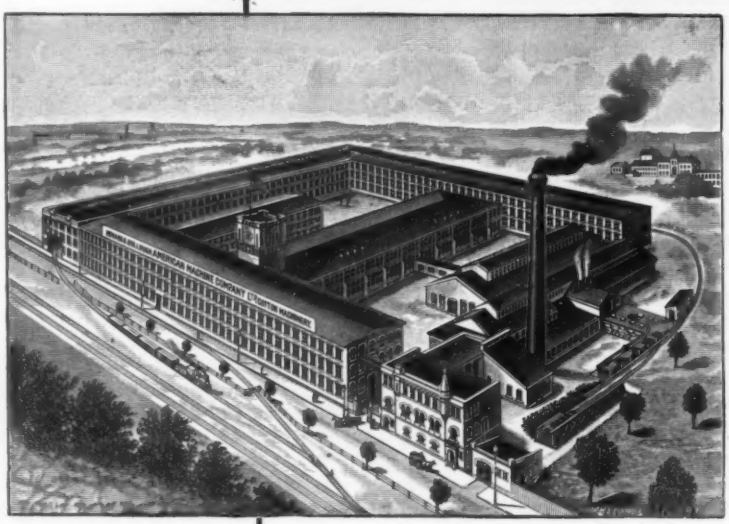

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VOL. 30. (NEW SERIES.) DECEMBER, 1905 No. 3.

Monthly Comment.

The Hosiery Manufacturers' Convention.

The earnest efforts of those who believed that the value of the Southern Manufacturers' Association would be greatly enhanced by making it the nucleus of a national association, were well rewarded by the attendance and interest shown in the meetings in Philadelphia last month. It was not to be expected that an organization of this character would immediately fulfil its mission. There are a great many people that like to wait and see what an association of this sort amounts to. Most people are rather skeptical and hold back.

The knitting trade has never developed the convention idea to any extent and many manufacturers that have been successful in their own affairs felt they were able to get along without the aid of any association and failed to see what good it could do them. There was, however, a sufficiently large attendance to indicate that a sincere effort will be made to accomplish the ends which many believe can be attained. There is certainly an opportunity for much good work to be done as the result of co-operation and a better acquaintance and knowledge of each other among hosiery manufacturers.

The principal value of trade conventions lies in the opportunity to become acquainted and the better feeling that personal acquaintance with one's competitors makes possible. The real work of such associations must be done by its executive officers and committees.

This hosiery association has undertaken a line of work different from any one of the other important textile associations. Both associations of cotton manufacturers confine themselves almost entirely to the discussion of technical subjects, with occasional papers on foreign markets, etc., but make no attempt at reforming methods of doing business or selling goods. The National Association of Wool Manufacturers restricts its efforts to the protection of the interests of woolen manufacturers from adverse tariff and other legislation.

While the Hosiery Manufacturers' Association may utilize its organization for its protection against tariff interference, its principal aim at the present time appears to be the reform of trade evils in relation to selling. That such evils exist is universally admitted. They never will be remedied unless there is a determined effort to do so, and a strong organization certainly ought to accomplish much along these lines The problems are many, but equally difficult ones have been overcome in other lines of trade. It is an important thing to establish standards even if it is not possible to get the entire trade to live up to them from the first. This is well within the possibilities of the National Association of Hosiery Manufacturers, and

it is to be hoped that a sufficient number of those who attended the convention will become permanent members, and, together with others not present, form an organization strong enough to maintain permanent headquarters and make it a real factor in the trade.

A Peculiar Price List.

The publication of the proposed price list for weaving, in connection with the strike of the textile workers in Thuringia, Germany, discloses a peculiar method of calculating the wages of the weavers. Instead of adjusting the scale of prices according to the density of the filling (picks per inch), as in American practice, the Thuringian weaver is paid by the length of the filling yarn woven in the goods. For example, the price list for weaving twilled cheviots is as follows:

4 to 6-leaf twill, single warp yarn, up to 8 Gaenge, and 100 cm. in width, 2.35 marks.

This formula requires explanation and reduction to English standards to make it intelligible to most of our readers. The expression "8 Gaenge" refers to the set of the warp and indicates that there are 8 Gaenge of 40 threads each in a width of 6 Saxon inches (5.52 English inches). The maximum width in the loom is 100 centimeters (40 inches) and the price, 2.35 marks (56c.), is for 100 hanks of 1,000 meters (1,094 yards) each. The mixture of the Saxon inch and the metric standards makes the price list exceedingly complicated, especially when framed for the wide variety of goods manufactured in this great German textile district. Reducing the expressions above given to English standards we obtain the following equivalents:

4 to 6-leaf twill, single warp yarn, up to 58 warp threads per inch, and 40 inches in width, 51c. (per hank of 1,000 yds.).

The application of this list will be better understood from the following illustrations. If a weaver has turned out 120 yards of twilled cheviot, woven with 50 picks and 58 warp threads per inch, 34 inches wide in the loom, her wages would be calculated as follows:

34 (inches) × 50 (picks per inch) × 120 (yards)=204 hanks (1,000 yards).

204 hanks at 51c. per hundred = $1.04.

This is 7/8-cent a yard for 50-pick work. If the goods had been 40 inches wide instead of 34 inches the wages would have been as follows:

40 (inches) × 50 (picks per inch) × 120 (yards) = 240 hanks (1,000 yards).

240 hanks at 51c. per hundred = $1.22.

For 40-inch goods woven with 50 picks per inch the price is, therefore, one cent a yard, as compared with 7/8-cent for 34-inch goods. Any change in the number of picks per inch would cause a corresponding change in the price per yard because the number of hanks of filling would be increased or decreased in a corresponding degree.

The Thuringian list is arranged to give a slightly increased price as the set of the warp increases in density. Thus for weaving twilled cheviots having more than 58 warp threads per inch the price is increased about 10 per cent. About 5 per cent. less is paid for goods having twist instead of single warp. For weaving samples 1.50 marks (36 cents) per day per loom is paid. An allowance is made for weaving fancy selvages, dobby and jacquard work. When a loom is idle for more than five hours waiting for filling or cards the weaver receives an allowance at the rate of 1 mark (24 cents) per day. The operatives are paid on Friday afternoons during working hours. Looms are cleaned three times a week. The working time is 10 hours per day, exclusive of "pauses." The weavers can run the looms during the "pauses" if they desire to do so. The wage account books are kept by a uniform system. For supervising the application of the price list a committee representing both employers and operatives is appointed, one-half by each side. For mills with 150 looms or less, the committee consists of four members, who must be male operatives over 25 years of age, and who have been employed at least six months in the respective mill. A weaver usually runs two looms, but when in exceptional cases this is increased to three or four looms the full price is paid for weaving.

Such is an outline of the conditions of employment proposed to the Thuringian weavers by their employers. That the wages

earned under these conditions are insufficient for an existence in comfort is indicated by a report of the American consul at Leipzig, Ernest L. Harris, who thus predicts defeat for the operatives in the struggle for better conditions, and that as a consequence, the Thuringians will be forced to leave Germany and seek in foreign lands what they cannot get at home:

"The weavers in the factories of Thuringia have always been in close touch with their fellow workmen in Saxony, and the dyers' strike at Glauchau-Meerane, which lasted only about three weeks, threatened at one time to involve the mills of Gera and Greiz, which would have thrown 40,000 men out of employment. . . .

"During the last few years the factory owners in the textile districts of Saxony and Thuringia have gradually perfected an organization to protect their own interests against what they claim to be the ever increasing and unjust demands of their workmen. The pith and substance of the organization is to squelch the growing tendency of their employes to strike, and as far as possible to stifle the influence of organized labor and social agitators to stir up discontent and strife. Their radical method is to shut up all the mills throughout the country in order to protect a manufacturer who is threatened with a local strike. Such a policy, as might naturally be expected, has definitely established the line of demarkation, and the whole problem has been reduced to a trial of strength. . . .

"It is not difficult to foresee the immediate outcome of the impending strike in Thuringia, even if it assumes wide dimensions, and no matter how long it lasts. As in the case of Crimmitschau, the workmen will be compelled to return to the factories practically at the dictation of their employers, for the simple reason that the fund of their organization is limited, and a prolonged strike at the threshold of winter means that the doors of distress will be opened wide the moment that fund is exhausted. Organized labor in the textile industries of Saxony-Thuringia will always lose in a test of strength, but in the long run the organized labor giver will also lose, for the reason that, aside from the immediate wounds inflicted in a business way, an impassable chasm, growing wider and wider with each succeeding year, has opened up between the two mighty factors of industrial life. The laboring classes as a last resort will turn to that old method which has exerted such a powerful influence on the world's history, namely, emigration."

Because of the refusal of their employes to accept the proposed schedule the Thuringian mill owners declared a lockout on Nov. 11, and as a consequence 40,000 hands were thrown out of employment.

A few weeks later the operatives gave up the strike and returned to work at the terms offered by their employers, thus fulfilling the prediction made weeks before by the consul. Will this further prediction of emigration as a result of this defeat be fulfilled?

International Co-operation in the Cotton Trade

The invitation to attend a cotton conference in Boston next April extended by the New England Cotton Manufacturers' Association has been accepted by the Southern Cotton Association, the American Cotton Manufacturers' Association and the International Federation of Cotton Spinners and Manufacturers, so that the conference is now assured. The invitation to the International Federation was considered by the Committee of Management of that organization at its meeting in Paris on November 14. Press reports state that it gave rise to a long and interesting discussion in which the co-operation of America in the work of the Federation was invited. The Committee decided to accept the invitation, and sent the following letter to President MacColl:

"The committee is of opinion that the interests of spinners and manufacturers of the United States are in no way different from those of other nationalities that have formed an International Federation. The purposes of such Federation are the protection of the legitimate interests of the cotton trade, the promotion of friendly feeling between the cotton growing and manufacturing interests of the world and the study of means that will counteract the influences which are detrimental to the welfare of both growers and consumers. With the object of again inviting our American colleagues to join the International Federation, and in the hope that this may be the means for achieving this end, the committee is very pleased to seize the opportunity of your kind invitation to send a gentleman well acquainted with the subject to attend

your convention, and to avail himself of the privilege of talking these matters over with your committee."

At the Paris meeting the Committee also decided to have the next International Cotton Congress held in Bremen, Germany, next year. Among the subjects to be discussed are cotton statistics, rules of cotton exchanges and cotton growing. The International Committee has strong hopes that the new system of cotton statistics will enable spinners to avoid the dangers by which they are now surrounded because of the speculative fluctuations in the cotton market and the ignorance of the real condition of supply and demand. President Loubet gave the members of the Committee an audience at the Elysee to show the deep interest he felt in the work of the Federation. The following is a press account of the reception:

Introducing the committee, M. C. Berger, the French delegate, said the aim of their organization was to defend the common interests of the world's cotton industry and to meet common dangers. In order to stop speculation they had gathered elaborate statistics showing the consumption and stocks of cotton throughout Europe. They intended to make strenuous efforts to extend the cotton growing areas in the colonies of European nations, and they urged upon all governments the importance of co-operation in this work, which would in time, they hoped, free the industry from the disabilities arising from too large dependence upon American supplies.

President Loubet in his reply, said he had already informed himself of the work of the International Federation ,and had followed it with great interest. He attached great weight to the meeting together of eminent men of different nationalities with the object of promoting smooth international working. Today the disposition of the whole of Europe was peaceful, and the prospects of international peace would be vastly improved by the successful working of such associations as that he was addressing. He hoped the committee would succeed in bringing into closer union the manufacturing interests of the various countries represented. The committee was working in the right direction. He wished them all success, and if he could be of any service would be delighted to place himself at their disposal.

Mr. C. W. Macara (England), chairman of the International Committee, in thanking the President, said that the improvement of harmonious industrial relations among cotton using countries was of the greatest value in the promotion of international friendliness, and the encouragement of President Loubet that day was very highly prized.

In closing the audience, President Loubet remarked that as the telephone, telegraph, and railways knew no geographical limits, so the great work of international industrial federation inaugurated by the cotton trade was charged with limitless benefits to humanity.

At the Paris meeting further consideration was given to the plan of compiling statistics of the consumption and stocks of cotton in European mills. A firm of Manchester accountants is charged with the duty of compiling the reports from the various mills and is pledged under oath not to reveal the details but to give out only the summarized totals as the committee may direct. It was decided at Paris that the official summary of the reports should be mailed at Manchester at such times as will enable them to be received simultaneously in the different countries. Presumably the reports to the more distant localities, Russia, for example, are to be mailed first; those to the mills in Lancashire last. It is evident that even with the exercise of the greatest care in calculating the probabilities of transportation by mail, the reports will fall far short of reaching all the participants in the plan at the same time. The difficulty arises from the restriction of the information to those making the reports. Moreover, it is not at all likely that the summarized reports can be kept secret, and the information will probably be public property before a considerable proportion of the participants have received the official advices mailed at Manchester. All these difficulties would be avoided by having the statistics for all cotton mills compiled in Europe, as in America, by the governments of the respective countries, and announced simultaneously for the benefit of all.

Knit Goods in Cuba.

Reports from Cuba indicate that trade with the United States, particularly in cotton knit and woven goods is steadily increasing as the Cuban merchants and consumers become better acquainted with American goods and methods. The knit underwear used in Cuba consists wholly of shirts, as the drawers are made of woven cotton cloth. American hosiery is growing in popularity in the Cuban market. Cuban dealers have found it difficult to get our manufacturers interested in the island trade, but when once started on initial orders the business has grown steadily. The preferential duty on American goods offers a considerable advan-

tage to this country, especially on knit underwear, hosiery, corsets and other specialties. In another part of this issue is an inquiry from an Havana merchant, who want to buy both knit and woven cottons from American mills. He informs us there is a marked tendency of the Cuban import trade in cotton goods to change from European to American goods, and that the principal obstacle to this movement is the indifference of American manufacturers.

Wool and Dogs.

That there exists a serious scarcity of wool admits of no dispute. The price, 72 cents, for fine medium territory, proves it, but in reality tells only part of the story. There is little doubt that 72 cents is close to the limit of the people's power to purchase woolen goods. This is indicated by the practically stationary position of wool values for the past six months and by the extensive use of cotton and other substitutes in place of wool. Ordinarily such a condition as now obtains in the wool market would cause a pronounced advance in the price of rags and shoddy. The absence of such advance is, however, exceptional and due to the popularity of the worsted finish which cannot be obtained with short wool stock. The eagerness with which woolen manufacturers are buying tussah waste shows what a strong demand there would be for shoddy if it would produce popular goods.

The supply of foreign wool is accurately indicated by the statements of imports, but the absence of any reliable statistics of the domestic supply makes it impossibe to determine to what extent the wool grower is succeeding in supplying the deficiency. The lack of these wool statistics is in glaring contrast with the vast scope of official and unofficial reports of the cotton crop, dealing as they do with every phase of the situation from the area and amount of fertilizer used to movement of the fibre into sight. This neglect of the wool clip should be remedied at once by Congress, but that is another question. The reports from the West indicate that the farmers are increasing their flocks because of the high price of wool, but this is a slow process and cannot be expected to supply a prompt remedy for the difficulty with which the woolen trade is confronted. While the flocks are being increased in certain sections, the extension of wool growing throughout the country is restricted by the ravages of dogs. The following item from the Bridgeport (Conn.) Standard illustrates this evil:

> A valuable flock of 102 sheep owned by Frank T. Maples of Norwich has been practically wiped out by dogs. The Norwich Bulletin reports that other flocks in that locality have either been destroyed by dogs or rendered so wild as to be of little value.
>
> The problem of the sheep-slaying dog in Connecticut is a serious one. Sheep grazing was once an industry of substantial proportions in this state, but it has been practically wrecked by dogs of low degree with an insatiable appetite for lamb and mutton on their bill of fare. A source of great possible wealth has been destroyed.
>
> There ought to be a million sheep in Connecticut today. Many of the hill farms of the commonwealth are admirably adapted to this industry. We have no doubt that except for the dogs that harass and harry, sheep would now be one of the great agricultural assets of the state.
>
> The problem of eliminating the sheep-slaying canine and making it possible for a flock of sheep to graze in the open without momentary peril of being slain or worried is perplexing. Perhaps no solution is available. The situation, however, is worthy earnest and expert study, and if measures which will result in the suppression of sheep-killing dogs and in the revival of a great agricultural industry are feasible they can't be worked out too soon.

This Connecticut case runs parallel with the experience of everyone who has tried to keep sheep near towns and villages. The certainty that worthless dogs will kill the defenceless sheep restrains the farmers throughout the settled portions of the United States from engaging in the wool growing industry, and supplying the present deficiency in our domestic wool supply.

With an area of 3,025,600 square miles the United States produces about 300,000,000 pounds of grease wool, or 99 pounds per square mile. Great Britain and Ireland, on the other hand, with an area of 120,809 square miles have a wool clip of 140,000,000 pounds, or 1,158 pounds per square mile. At the English rate of production per square mile the United States would produce 3,500,000,000 pounds per year, or 50 per cent. more than the present production of wool in the whole world, and instead of importing wool we would have a large surplus available for export.

These conditions and possibilities of the wool growing industry in the United States show conclusively the importance of discovering and removing the causes for our deficiencies. It is the clear duty of the authorities at Washington to make a thorough investigation of the question. At present the wool growing industry is practically neglected by the government. It may not be possible to remove the causes that prevent the development of wool growing, but at least an effort should be made to discover them. Cotton has its boll-weevil; wool has its sheep-killing dog. One is as great a pest as the other and the extermination of one is as proper a subject for the activities of the Department of Agriculture as that of the other. Certainly officials of a department that is encouraging the raising of silk worms should devote some attention to increasing the wool supply.

Protection of Trade-Marks.

The value of trade-marks has been more generally recognized in textile lines during the last few years than ever before. Many manufacturers are advertising their goods under a trade-mark and recognize the importance of protecting it. The new trade-mark law is in many respects an advance on the old one, but still does not go so far as it might in the way of protecting the registry of the trade-mark owners.

The United States Trade-Mark Association is endeavoring to secure legislation which will make it a penal offence in the United States to imitate wrongfully a registered trade-mark. It invites the co-operation of all trade-mark owners to secure this object, and to unite with them in furthering the purposes of the association, which desires to further in all ways the interests of trade-mark owners. This association dates back to 1879 and numbers among its officers representative business men, its vice-president being Mr. James Talcott of the American Hosiery Company. As it is but recently that textile manufacturers became much interested in trade-marks, it is quite probable that many of them are not familiar with this association and its aims and purposes, and we are glad to call attention to it.

Guarding Against Accidents in the Spinning Room.

Additional regulations have recently been made by the English government to protect those working around self-acting mules. Every self-acting mule must be securely fenced as far as is reasonably practicable unless it can be shown that by their position or construction they are equally safe to every person employed as they would be if securely fenced: Back shaft scrolls and carrier pulleys and draw band pulleys, front and back carriage wheels, faller-stops, quadrant pinions, back of head-stocks, including rim-pulleys and taking-in scrolls; and rim band tightening pulleys, other than plate wheels, connected with a self-acting mule erected after January 1, 1906.

The regulations state that it will be the duty of the minder of every self-acting mule to take all reasonable care to ensure that no child cleans any part or under any part thereof while the mule is in motion by the aid of mechanical power; that no woman, young person or child works between the fixed and traversing parts thereof while the mule is in motion by the aid of mechanical power; and that no person is in the space between the fixed and traversing parts thereof unless the mule is stopped on the outward run. No self-acting mule is to be started or restarted, except by the minder or at his express order, nor until he has ascertained that no person is in the space between the fixed and traversing parts thereof.

How the Scale Slides.

Since the sliding scale was adopted at Fall River for regulating wages the increases above the minimum of 18 cents per cut have been as follows:

Nov. 4	4 per cent.
Nov. 11	minimum.
Nov. 18	2 per cent.
Nov. 25	1 per cent.
Dec. 1	3 per cent.

One result of this plan of adjusting wages has been to direct the attention of the public, and especially of the operatives, to the effect of speculation in raw cotton on the business of manufacturing cotton goods. Not until people

in general are aroused to the evils of market rigging and manipulation of prices will any remedy be attempted. If the Fall River sliding scale accomplishes nothing else than contributing to that result it will prove of inestimable benefit to the cotton trade.

British Colonial Cotton.

The annual report of the British Cotton Growing Association was issued last month and contains the following estimate (in bales) of cotton grown under the auspices of the organization since it was formed:

	1903.	1904.	1905.
Gambia	50	100	300
Sierra Leone	50	100	200
Gold Coast	100	150	300
Lagos	300	2,000	5,000
Nigeria	100	150	400
West Africa	600	2,500	6,200
West Indies	1,000	2,000	4,000
East Africa	300	1,500	4,000
Total	1,900	6,000	14,200
Approximate value ...	$145,000	$400,000	$950,000

Subscriptions to the capital stock have come in somewhat more freely of late and brought the total amount subscribed to nearly $1,000,000, on Aug. 31. The capital authorized under the royal charter of the association is $2,500,000 (£500,000), and the officers are confident that the full amount will soon be paid in. The expenditure for the year reached $101,642; of which the office expenses at Manchester formed $20,951. In an appeal for subscriptions recently made by the association to the cotton trade, spinners are asked to subscribe $2.50 a year for every 1,000 spindles; weaving mills, 6 cents a year per loom; operatives, a day's wage, payments to be spread over several weeks so as to fall as lightly as possible; managers, clerks, warehousemen and others, in proportion to their respective salaries.

Determining Fibres by Violet Rays.

It is reported that Dr. Sasserath, director of the government bureau at Berlin for technical instruction of customs officers, has discovered that violet rays possess the property of penetrating vegetable fibres, and of being arrested by animal fibres. This peculiarity, it is said, will make it possible for customs officers to distinguish much more rapidly than is possible at present, mixtures of cotton and wool, natural and artificial silk, etc.

Textile Schools and the Mills.

At a recent meeting of the education committee of Preston, Eng., Sir H. F. Hibbert called attention to the difficulty experienced by graduates of textile schools in securing positions in the mill. Along with many English municipalities, Preston contributes to the expense of educating a number of students in the cotton courses at the textile school, and the difficulty in getting mill positions for the graduates raised the question as to whether the money spent on the cotton students was not wasted. The discussion at Preston is reported as follows:—

Sir H. F. Hibbert: Our cotton students, upon whom had been spent a large amount of money—their education having cost £140 per head—upon finishing their course of instruction, experienced the utmost difficulty in obtaining employment, although they were practical men before they commenced their studies at the Manchester Technical School. If this difficulty continued the Committee would have to reconsider their position and see whether the money could not be better spent in other directions. It had been urged that a defective general education was responsible for the failure of students to find employment, and he thought that the coming conference would settle whether this were the case, or whether it were a question of prejudice upon the part of the manufacturer. The other day he got a letter from a student in one of the large technical schools in a county borough who was unable to obtain employment, although he had obtained silver medals and certificates in science, and had won a language scholarship, which enabled him to finish his education on the Continent. Unless there were greater co-operation between masters and students, a large amount of money would be wasted. It was a matter of great importance to the county.

Mr. Greig said that his previous objection held good; and if the students had a better general education there would be a greater demand for them. He was afraid that the students learned too much. While it was quite true that if students were going out to Russian or Continental mills they might have to take charge of spinning, doubling, weaving, dyeing, and bleaching, in England it was rarely necessary. In England a man had to be more or less an expert in one particular branch; but he must also have had a thoroughly sound general education to start with. It would be to the interest of students who did not intend going to the Continent if they specified their future in-

tentions and concentrated their energies upon one or at the most two departments. He did not believe that in a two-years' course a student could become an expert in five different subjects, and he hoped the Cotton Sub-committee would take that into consideration.

The Preston incident started a general discussion in the English press and trade as to the value of technical education in textile mills, and disclosed a strong prejudice among English manufacturers against the textile graduate. This feeling is thus stated by a reporter of the Manchester Guardian, who made a canvass among the employers to determine their attitude on the question:—

The qualifications or disqualifications of technical school men for mill management have recently been a frequent topic of conversation on the Manchester Royal Exchange, and the impression that the majority of Lancashire spinners and manufacturers have a lingering prejudice against the "bookish" manager has been amply confirmed. They regard all technical students as being saddled too much with "bookish" whims. "Suppose," I said to one of the debaters, "that you were selecting a manager out of two applicants, and one was of a 'bookish' turn of mind, would you in any way have a suspicion that he could not be relied upon to give satisfaction?" His reply was, "Yes, you can put it that way. I should suspect, I should be doubtful." In these circumstances it will be evident to all who are acquainted with the business conservatism of the cotton spinner that the "bookish" man would not secure the post. It is very rare indeed that a Lancashire spinner or manufacturer moves in a doubtful path. Let me give another instance which will serve to show the odds against the student. A day or two ago, on the Manchester Royal Exchange, a gentleman—shrewd, industrious, and successful—made an allusion within the hearing of the writer concerning a newly appointed manager at an establishment of which he was one of the main financial props. The remark was, "Well, he's a good man; an excellent man." The speaker paused, and then added, "But I'm afraid he's a bit too 'booky.'" And I hear the same story in other words in different parts of the county. Therefore a good point for technical students to remember is not to wear a "bookish" look, not to betray "bookish" habits.

Of course all this does not imply that the technical student is necessarily "bookish." But it has been recently forced upon my mind that the Lancashire spinner or manufacturer thinks he is. And one vehement purpose of the student in the near future should be to convince the employers that a man with a bent for study may also have an aptitude for business, an eye for practical requirements. From all accounts it is the superiority of the technical student—the real student—which is against him. He is not wanted. I am told that there is neither need nor room for him. Managers, masters, and merchants tell me that the technical student is too much given to calculating, comparing statistics, juggling with details, investigating and experimenting. That will not do, say the employers. Whilst the technical student as manager is doing all this he is not getting business, is the belief. "Statistics don't matter to me," said a man from Royton to my inquiries; "I don't want a man to spend his time with them." And so he went on. In Oldham, Royton, Middleton, and Rochdale, I have found a general opinion that the school-trained manager was too much inclined to ponder over calculations and details, instead of confining his attention to the procuring of results that will yield profitable orders in the markets and a "fat" balance-sheet for the joy of the directors. "What I want," said an Oldham spinner, "is quantity and quality of production, strength, evenness, and cleanliness of yarn, and good orders. These have been, and can be, maintained without a special technical training."

It is asserted that business or commercial instinct is preferable to technical education, and is even preferable to mechanical knowledge. And there is a tendency at present to promote salesmen to the position of managers, though the practice is not welcomed by other managers who have "been through the mill." These salesmen, as is well known, spring from the counting-house. They have never been among the machinery. But by means of books and teaching they have acquired a theoretical knowledge of the processes of spinning or manufacture. Their chief recommendation, however—and this is the point to be remembered by the technical "student,"—is that they have a talent for conducting commercial transactions, for dealing with and reading men, for knowing when, how, and where to buy or sell. Therefore the point to be decided is this. Is a commercial knowledge with a "smattering" of machinery and machine calculations more conducive to successful mill management than what is referred to as technical training? The general belief is that it is. "I know," observed a manager to me, "at least half-a-dozen men whose technical education is of the best, who have received the highest diplomas, but they'll never make successful managers—they could not be relied upon to secure the best business results." "I don't care," said an employer from Dukinfield, "if my manager doesn't know a B fro' a bull's foot if he con get men and machines to turn eawt t' reet sort o' yarn an' sell it at t' best price."

These press extracts evidently represent the general opinion of the English cotton trade, and deserve the careful attention of all who desire to bring textile education to the highest possible efficiency. It will not do to wave the objections of the English manufacturers to one side as unfounded and ignorant prejudice in favor of the man whose training has been gained in the mill. This is disproved by their readiness to accept the salesman as a mill manager, although he lacks the purely mill training. On the other hand, it would be as great a mistake to condemn technical education in the textile industry because the graduates lacked

the qualities that can at the present time be acquired only outside of the textile school. That would be to sacrifice the valuable training and knowledge that can be acquired only inside of the textile school.

The value of that training in the school is beyond question, but a mistake is often made in claiming too much for it. A technical training is of no advantage, in fact it is a detriment to the man who is to feed a picker; but it is not only a great advantage, it is in connection with practical mill training essential, to the man who is called upon to design a reliable system of estimating the cost of production in a large mill manufacturing a wide variety of fancy fabrics. To approve of all the training given in textile schools is as great an error as to condemn it all indiscriminately.

Instead of falling into these errors, the critics and defenders of technical education should get together and compare notes. Both will agree as to the object to be attained, the training of the students to become efficient mill employes. Let the educator discover and correct the defects of the present system. These defects may consist in errors of omission or commission; they can be discovered and corrected only by co-operation between textile educators and manufacturers. No better field for such co-operation is found than here in America, where textile education is in the early stages of development and where manufacturers are so ready to discard the old for the new. There is no such prejudice against textile graduates here as evidently exists in England. Let us guard against the growth of such a sentiment by bringing our schools to the highest efficiency. This can be done only by combining practice with theory. The need of such combination has been recognized for years in German textile schools, where attempts have been made to manufacture goods in the school on a commercial scale. Only by making the school training practical can the student's value be brought to the maximum. American textile schools should not only be the best on earth, but the best possible. By accomplishing this object we would be taking a long step toward the goal which an English writer in this issue says is impossible for us, a control of textile manufacturing as complete as our present control of the production of raw cotton.

The Recent Cotton Congress.

In this issue appears an article by Arthur Y. Scholfield, an English cotton manufacturer, on the International Cotton Congress at Manchester, England. It is in the form of a reply to the report of the American delegate, and we believe represents the overwhelming sentiment of the English cotton trade. Mr. Scholfield's able argument and evident good-will make it very difficult to differ from him. He is thoroughly convinced of the virtues of free trade and the losses that result from any protective tariff. He speaks not as the free-trade theorists bred in American colleges, but as a practical man, who has been convinced of the truth of his theory while living and doing business under English free trade. There is much force in Mr. Scholfield's contention regarding the difficulty of building up an export trade in manufactured goods in a country of high protection. As far as the United States is concerned, the reply is that foreign trade is secondary to the possession of the home market; that we have at home a trade vastly greater than any we could expect to obtain abroad; and that a foreign market that can be held only by lowering wages at home is for us not worth having.

TUSSAH SILK: A CORRECTION.

In our October issue we gave a list of Eastern exporters of tussah silk waste supplying English firms, among them being Kidd, Boden & Co. of Manchester. We are advised by Messrs. Kidd, Boden & Co. that none of the firms named supply them with silk waste, and that they import only from A. R. Burkill & Sons, Shanghai, Rowe & Co., Canton, and Cornes & Co., of Yokohama and Kobe, and that of these firms they are the sole consignees in Europe.

Clocks, early described as "quirkes about the ankles," were the ornaments applied to stockings in the reign of Queen Anne.

Seasonable Fabrics.

MEN'S WEAR WOOLENS.

The light-weight season for 1906 is now practically closed, and it has proved very satisfactory to the majority of the selling agents.

It has been preponderantly a worsted season, and the mills that confine their looms to woolens, voice the only discordant note from the general approval as to the volume of business achieved.

These woolen manufacturers indicate their determination to secure a larger share of business for fall, and with that object in view are now making preparations for an early opening at close values. It is undoubtedly true that woolens were neglected during the past season, and wool manufacturers are willing to make concessions today that they would have stubbornly refused a few months ago. It is probable that these activities and readiness to accept business on a close margin, will result in a materially increased volume in wool heavy-weights for fall.

Several lines of fancy overcoatings have been shown to a few of the leading clothiers at prices varying but little from those of a year ago, and the outlook for this class of fabric is certainly encouraging.

For immediate delivery, agents report a call for overcoatings, freizes, meltons, beavers and fancy overcoatings in medium grades; and the demand from the cutters for kersey has assumed unusual proportions, resulting in considerable difficulty to secure prompt deliveries, even at a material advance in price above opening quotations. Kerseys that were quoted at $1.05 when the lines were first shown are now selling at $1.37 1/2, and it frequently happens that buyers cannot secure the goods they want at any price.

The heavy-weight lines for 1906 that have already been opened consist principally of 3/4 and 6/4 lower grade goods, such as cotton cassimeres and satinets. Buyers are operating more freely and liberally than heretofore, and all indications point to a phenomenal volume of business being done right through from the lowest to the highest, considering the general prosperity now existing throughout the whole country.

Raincloths are in continual request, and some excellent values are to be obtained. Fig. 1 shows a herringbone effect sold by Austin & Gifford at 80 cents, 56 inches wide.

L. Bachman & Co., department Sachs & Sanger, are showing a very attractive line in cotton worsteds as follows: 27 inches

FIG. 1.

range 7400, 25 cents; 7600, 26 1/2 cents; 7700, 23 cents; 9300, 32 1/2 cents; 30 inches range 6000, 25 cents; 4400, 27 1/2 cents; 800, 37 1/2 cents, 10 per cent. 30 days.

S. H. & O. B. Newhouse are showing a line of heavy-weights ranging in price from 15 1/2 cents to 35 cents with about 5 per cent. advance. There are two new lines of cassimeres included: the Waltham at 37 1/2 cents and the Hargreaves at 25 cents.

The Earnscliffe Worsted Mills are showing the Saxonville serges; prices range from $1.07 1/2 to $1.35, showing an advance of 15 cents to 20 cents per yard over last year's quotations.

Hyde & Jacobson are showing a line of

12-ounce double and twist coverts at 85 cents.

Holden, Leonard & Company have opened a new line of raincloths for men's wear, weight 13-14 ounces at $1.25.

Greely, Cushman & Record have opened two lines of stripes in 3/4 meltons; 11-ounce is quoted at 32 1/2 cents and a 14-ounce line at 40 cents.

DRESS GOODS.

The development of the spring business is dilatory and so far the volume realized is not up to expectations. Conditions generally are unquestionably good, and there is no apparent reason why this division of the market is not up to the general standard.

There are, however, a few mills very well positioned, especially those that are known among the trade for their excellence in the productions of broadcloth. The request for this fabric is continuous from jobbers, cutters and retailers, and such shades as reds and plums are difficult to secure for spot delivery.

China and Alice blue are also freely bought, for both present consumption and spring delivery.

There has been no change in the relative position of the fabrics. Next to broadcloths, smooth finished fabrics such as henriettas and prunellas are in demand.

Few new fabrics of note have been introduced, but the 8-ounce overplaid crash, illustrated in Fig. 2, shown by E. B. Moore & Co. at 57 1/2 cents, 54 inches wide, deserves special mention.

Serges, especially cream, are attracting a good deal of attention, and it is more than probable that the request will materially increase with the advance of the season.

Grey panamas are taken liberally. Mohairs are not quite so strong, but no radical decline is yet noted. Cream mohair has been bought liberally for spring, and the business booked for black mohair and sicilians is on a parity with last year.

All sheer goods such as voiles, eoliennes and batiste are considered good property in black, cream and plain colors.

An increased tendency toward fancies, is noticeable, but up to the present, plain fabrics have been predominant.

Silk warp fabrics, such as lansdowne, manufactured by William F. Read & Son, Philadelphia, and "mon reve," made by Folwell Bros. of the same city, possess high merit, and are sold up to February 1st.

The Botany Worsted Mills are said to be sold up on all lines of broadcloths and henriettas to March 15th.

SILKS.

The silk market is in an apathetic condition, and there is but little improvement in evidence since the slump, which occurred during the middle of the summer; there is, however, a tendency toward an improved situation, and it is to be hoped that matters will mend as the spring approaches.

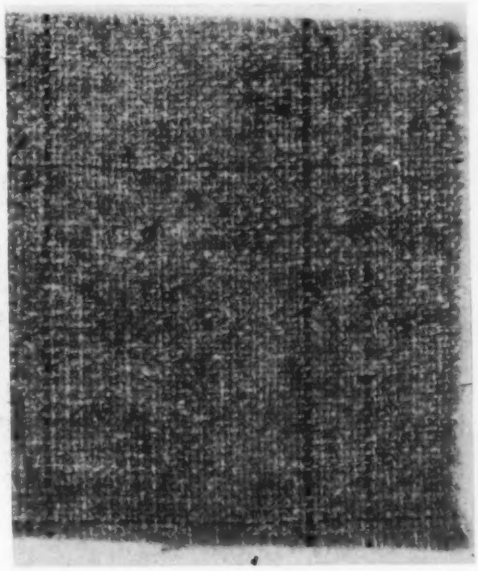


FIG. 2.

Most of the Paterson manufacturers have been obliged to curtail production, with the consequence that there are only 40 per cent. of the looms running with the operatives working half time.

Even the strongest silk concerns in the country that demanded an advance on all spring goods, have been compelled to fall back on old prices. In the majority of instances concession in price can be secured on any large lots.

Manufacturers predict a marked change

from last season's styles. Plain silks, except in certain special lines, they expect will not be used to any great extent.

Figured novelties in warp prints, taffeta and other weaves, especially for all silk suits, are to take the place of plain taffeta. Moires in a softer and lighter weave are considered good. In radia taffeta small white figures on a black ground, and black on white, and jasper effects in gray are selling.

Floral print warps with a satin stripe of a contrasting color as shown in Fig. 3 is one of the novelties produced by Jansen & Pretzfeld at 90 cents, 21 inches wide.

FIG. 3.

Plaids have done well and for spring a large variety of light combinations are shown.

Pile fabrics of all kinds, chiffon and paon velvets and velveteens have maintained their old-time popularity, and both importers and manufacturers report business as most satisfactory.

Staple goods, such as black taffetas and colored peau de soie and goods of a similar character, are receiving a very fair amount of attention.

COTTON DRESS GOODS.

The present condition of the market is highly satisfactory to the seller of all classes of cotton merchandise; buyers have very little to say but to supply the needs at current quotations, which seem to be as unstable as those for the raw material.

Advances have been made on the staple lines of prints, sheetings, drills, denims, tickings, ginghams, and there is nothing to check a continued upward tendency in all these goods, and the various branches of the bleached goods' division.

Jobbers refuse to take any more business on such staple dress ginghams as the Amoskeag A. F. C. and Amoskeag seersuckers, stating that they now have on their books orders for more than was allotted them. Still there is little need to be alarmed, so far the advance is not abnormal, and satisfactory substitutes can be obtained in nearly all instances.

The vogue for white dress fabrics for next season promises to eclipse all former years, and the trend of the demand is for sheer goods, such as Swisses, India linons, batiste and other light constructions of the same class, and it is possible that there will be a scarcity before the summer is over.

Leno effects are still taken in moderate quantities, but small figured jacquards are likely to be more favored as the season progresses.

LININGS.

The situation is stronger than it has been for several months, values are steadily stif-

fening and goods are firmly held at the new quotations. The demand has been excellent for percalines and silesias, as well as for the highly finished mercerized lines.

The clothiers have placed liberal orders for mohairs, alpacas and goods of similar character, and all indications point to a renewed activity.

Cotton Goods Wanted in Cuba.

Editor Textile World Record:

Will you call the attention of your readers to the fact that we want to buy the following goods from American mills:

1. Light weight men's undershirts, plain, fancy, solid colors, and especially open work.
2. Lisle thread, full fashioned hose and lace hose.
3. Light weight hosiery of every description.
4. Printed lawns, percales, drills and calicoes generally.

Frank G. Robins & Co., Havana, Cuba.

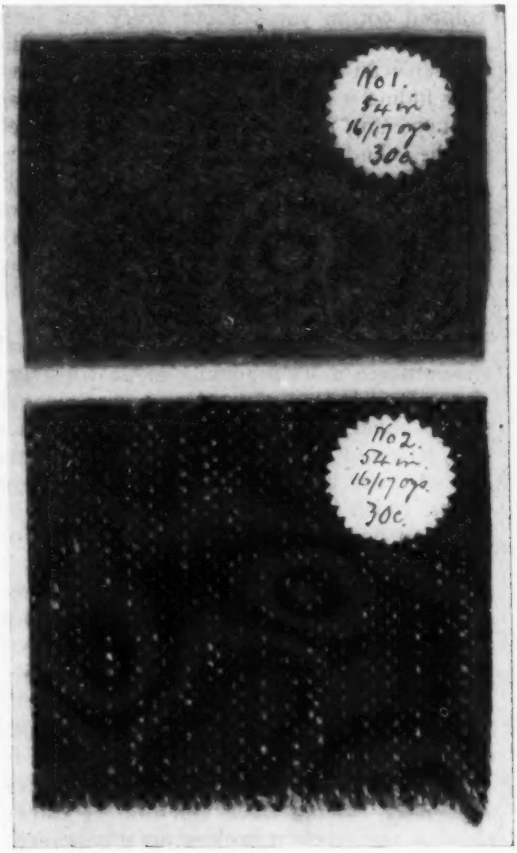
YORKSHIRE TWEEDS.

(Specially Written for Textile World Record.)

Yorkshire woolen manufacturers can be said to be busy; in fact, it is years since there was the general briskness in the West Riding that can be seen today. To hear of a mill being slack is decidedly the exception, and the number that are working overtime indicates that orders are plentiful and prospects good.

As I write this I am forcibly reminded of Tom Hood's Song of the Shirt, but instead of stitch, stitch, early and late, it is tweeds, tweeds, tweeds, from Monday morning to Saturday night. A few days ago I had the privilege of going up the Colne Valley, near Huddersfield, a place of world renown for doing almost the impossible. I was told not to mention the word "brisk," for eight o'clock was the regular giving over time for all male hands. "But what are they making?" I queried, and I was answered: "Tweeds galore." We have heard a good deal lately about worsted coatings and more particularly blue serges becoming popular, and doing away with tweeds, but wholesale clothiers say that as long as wool keeps where it is, we shall not see much development in the consumption of pure worsted goods. What working man is going to pay two guineas for only an average blue serge, when he can be smartly dressed in a tweed suit for 27s. 6d.? It is exactly here that we have the crux of the whole question, and there the matter stands.

Four samples placed in my hands afford ample evidence of what is being done, and the cloths are worth consideration as showing the really smart methods in vogue in producing something cheap. That the

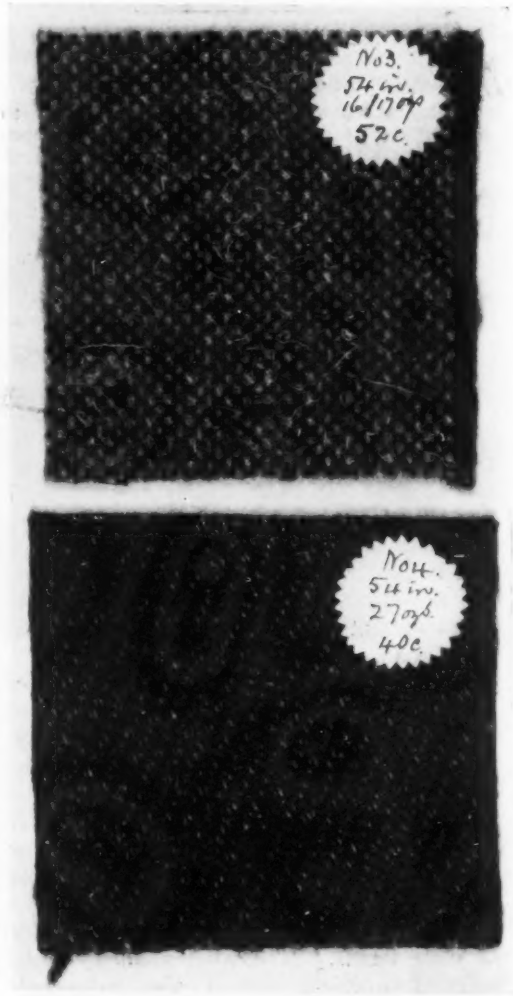


tweeds have never been near the wool bag goes without saying; in fact, pure wool seems to be about the last commodity that is sought for by scores of manufacturers. And yet they are turning out so-called woolen tweeds, which look well, and which sell very readily indeed. If they did not sell they would not be made, but the firms producing them are advertising for hands, which is significant enough.

Our first pattern is a cloth well suited for either the men's or women's trade, and looks very much better than it actually is. When I first picked it up I never dreamt that it was a cotton warp, woven with woolen weft, but such it is. But just think of the price, 30 cents, 54 inches wide, 16 to 17 ounces to the yard. The cloth requires no brilliant brains to construct, all the warp being cotton, and the weft a low woolen shoddy. The striping is caused by the introduction of colored cotton yarns about every half inch. A rather coarse set in the loom gives the woolen weft a chance to rise on the cotton, thus hiding it completely from the view of an unsuspecting public. Of course, it is well finished, and being nicely made looks very well indeed. It is a very good mantle cloth, a large number of three-quarter jackets for ladies at present being made from this very cloth in gray shades. Such jackets are smartly cut, nicely trimmed, and are being retailed today at about four dollars each.

Our next cloth, No. 2, is very popular and shows much more ingenuity in its construction. It is indeed a very long time since I saw its equal, and here again for its construction, it would be hard to beat. It represents one of those black and white or bird's eye cloths, which have had such a run; both for men and boys' suits it does very well. Not one man in twenty would ever dream that it was made with a cotton warp, and so ingeniously is it put together, that all suspicion of its shoddy character is entirely eliminated. For a season's wear it will do remarkably well, and for a "slack back" jacket it will look fashionable to a degree. Instead of the warp being thin spun cotton yarn, it is rather thick, not over hard twined, and lacks uniformity. Being thick and thin in places gives to the fabric a broken up appearance; fancy colored cotton twist threads being introduced about every three-quarters of an inch gives to it quite a "snappy" appearance. It is really surprising what an extensive use is being made of these soft cotton warps, the get up being very much after the style of a woolen thread. Being soft twined there is not that hard, cottony handle that would otherwise result were the warp threads hard and fine, and this is a feature that our woolen manufacturers are seeking when using so much cotton yarn.

The weave employed is the old plain, one up and one down, the weft being all black and spun thick out of all shoddy. Its wearing property is better than one expects, merely because cotton will wear, and for



those just wanting a summer suit, such a cloth as this is the ticket. The price is 30c. per yard, 54 in., 16 to 17 ounces. The cloth is suitable for almost any purpose, and is a leading one for the spring of 1906. Any American manufacturer being in close proximity to the office of this paper would do

well to see it, for I am certain it would sell just as well in the States as it is doing here.

Donegal tweeds is a name borrowed from good old Ireland, and used, I suppose, to describe Yorkshire tweeds of a similar character to those made in County Donegal. The one under consideration is really a tweed for dress goods purposes, and not for men's wear, though it is made in one of our best woolen mills. I like the cloth immensely, the way it is put together and its colorings being really smart. This time we have an all wool tweed, though there is undoubtedly a fair quantity of cotton scribbled in to produce the woolen yarn. The colored thread is produced on the "knop" machine, and livens the fabric nicely. There is nothing very remarkable about the cloth unless it be the price, 52c., 54 in., which is certainly very reasonable. It is suitable for a better class trade, and looks remarkably well when made into a whole costume. Of course, the kemps are there just to give it an Irish appearance, and it will wear and look well.

I suppose every country will require its special hard wear, bulky cloths for its farmers, cattle men and horse riders. Whipcords are the cloths that are very largely worn in the country by the class of people I have named. In my early days I helped to make thousands of pieces of this very cloth, but we always got 60c. per yard, 27 inches. The cloth I am about to describe is only 40c. per yard, 54 inches, and 27 ounces in the bargain. It does seem strange that in the latter cloth a buyer is getting four ounces more weight per yard for little more than half the money, but how it is done need surprise nobody. As the name implies, whipcords when made out of a bit of good wool will stand some real hard wear and a more serviceable cloth it is impossible to buy for those that spend much of their time outdoors. The demand for something cheap has actually reached this strata of manufacturing life, and so long as the goods sell and the men from the country are deceived, nobody cares. It is worthy of notice that a little extra weight has been got in order to give the buyer something to handle. Plenty of people still buy cloth on the false assumption that if it is bulky and heavy it is bound to be good, but a greater fallacy no man ever labored under. The cloth in question has never been near the wool bag, the warp being all cotton twist instead of good Botany wool, while the weft is spun thick and all shoddy. It handles firm and strong, but as for wearing, the less said the better.

[An analysis of the four samples referred to in the above article gives the following finished construction:

No. 1.

Weight, 15½ ozs. per yard, 55 inches wide.
Warp, 7½ threads per inch, fancy single 15's cotton.
Warp, 37½ threads per inch, white single 21's cotton.
Filling, 36 threads per inch, grey single $1\frac{6}{10}$ runs 43% cotton.

No. 2.

Weight, $17\frac{1}{10}$ ozs. per yard, 55 inches wide.
Warp, $11\frac{7}{10}$ threads per inch, fancy 2/10 cotton.
Warp, $11\frac{7}{10}$ threads per inch, white single 3.4 cotton.
Filling, 22 threads per inch, $1\frac{1}{10}$ runs wool shoddy.

No. 3.

Weight, 14 ozs. per yard, 55 inches wide.
Warp, 17½ threads per inch, $1\frac{6}{10}$ runs 17% cotton.
Filling, 18 threads per inch, 2.34 runs 8% cotton.

No. 4.

Weight, 24.9 ozs. per yard, 55 inches wide.
Warp, 35 threads per inch, 2-ply 16's cotton and 4.2 cotton.
Filling, 31 threads per inch, 1¼ runs 23% cotton.

To estimate the spun sizes and woven construction, allowance must be made for changes in weaving and finishing.—Ed.]

In 1482 an act was passed in England forbidding tentering machines to be kept in the house, and ordering that the tentering of cloth should be carried on in public, to prevent overstretching of the cloth. Later other statutes were enacted, as it was found the cloths were becoming worse "despite the good and godly purposes of divers statutes made for the true making and working of woolen cloth."

The Textile World Record's Annual Report of Mill Construction for 1905.

In the most prosperous year in the history of the United States the number of textile mills constructed is less than for any of the preceding five years. The reason for this is plain. The limit of capacity seems to have been reached in one of the essential factors of production. There are the demand for goods, a sufficient supply of raw material and an abundance of capital and material for building and operating new mills. The supply of labor, however, is exhausted in some lines; and without labor the strongest demand for goods must be unsatisfied, raw material remain in its raw state, building materials lie unused, and capital seek in vain for the risks and profits of manufacturing ventures.

This lack of labor explains why only 245 new textile mills were built in the United States in the year just ended. It has been estimated on excellent authority that 20 per cent. of the textile machinery in the South is now idle because help cannot be obtained to operate it. With spindles and looms idle in old mills the uselessness of building new plants is self evident.

Whenever the necessary textile operatives appear on the scene, mills will go up as if by magic and we may then expect to see an activity in mill construction similar to that which in the past year has added 5,000,000 spindles in Lancashire. Doubtless the emigration from Europe which reached 1,000,000 the past year and is likely to be larger in the year to come, will eventually relieve the scarcity of labor in our textile mills. That relief could be facilitated if some means were devised for bringing to the attention of the textile workers in Europe the opportunities offered by America.

In another part of this issue reference is made to the strike of 40,000 textile operatives in Thuringia, and to the prediction of the American consul that their defeat would be followed by emigration. The defeat has come, as predicted by the consul; the Thuringian operatives have been forced to accept their employer's terms, and doubtless thousands of them are ready to take the next step, emigration. There, possibly, or in overcrowded England is to be found the remedy for the present scarcity of labor in American textile mills.

The accompanying tables give the figures for new mills only. As there has been a

COMPARISON OF SPINDLES IN NEW MILLS (COTTON) FOR THE PAST SEVEN YEARS.

	1905	1904	1903	1902	1901	1900	1899
New England	100,800	61,184	135,000	347,320	30,000	185,700	315,000
Southern States	97,920	155,472	281,752	490,256	259 360	1,109,584	669,970
Middle and Western States	.....	.....	.....	25,000	2,064	11,500	78,000
Totals	198,720	216,656	416,752	862,576	291,424	1,306,784	1,062,970

COMPARISON OF NEW MILL CONSTRUCTION FOR PAST SEVEN YEARS.

	1905	1904	1903	1902	1901	1900	1899
Cotton	33	48	81	68	50	171	91
Woolen	38	45	65	46	53	48	49
Knitting	79	111	105	82	93	109	57
Silk	53	49	58	45	29	43	32
Miscellaneous	42	37	25	21	21	29	16
Totals	245	290	334	262	255	400	245

NEW COTTON MILLS IN 1905.

South	No.	Spindles	Looms
Georgia	2	12,500	144
North Carolina	7	69,920	1,471
South Carolina	3	24,500	686
Texas	1	.....	....
Totals	13	97,920	2,301
North			
Connecticut	2	30,000	....
Massachusetts	4	70,000	2,021
New Hampshire	1	.....	....
New Jersey	1	.....	6
Pennsylvania	11	.....	90
Rhode Island	1	800	....
Totals	20	100,800	2,117

NEW WOOLEN MILLS.

	1905	1904	1903	1902
New England				
Connecticut	2			
Maine	1			
Massachusetts	9			
New Hampshire	1			
Rhode Island	3			
	— 16			
Middle States				
New Jersey	7			
New York	2			
Pennsylvania	9			
	— 18			
Western States				
California	1			
Michigan	1			
	— 2			
Southern States				
North Carolina	1			
South Carolina	1			
	— 2			
Totals	38	45	65	46

NEW KNITTING MILLS.

	1905	1904	1903	1902
New England				
Massachusetts	2			
	— 2			
Middle States				
New York	15			
New Jersey	3			
Pennsylvania	32			
	— 50			
Western States				
California	1			
Illinois	2			
Indiana	1			
Iowa	2			
Kentucky	1			
Michigan	3			
Montana	1			
Ohio	1			
Wisconsin	1			
	— 13			
Southern States				
Alabama	1			
Georgia	4			
North Carolina	5			
Tennessee	4			
	— 14			
Totals	79	111	105	82

large increase in textile machinery by reason of enlargements of established plants, the figures given are necessarily but a relative indications of the growth of the industry, and should not be accepted as an absolute standard of its development. Taking up the record by industries we find the largest falling off in new mill construction in 1905 as compared with 1904 to be in cotton manufacturing. For the whole cotton industry

NEW SILK MILLS.

	1905	1904	1903	1902
Connecticut				
Broad silks	2			
Silk throwing	1			
Narrow fabrics	2			
	—			
Delaware				
Broad silks	1			
	—			
Georgia				
Silk spinning	1			
	— 1			
Massachusetts				
Broad silks	1			
Narrow fabrics	1			
	— 2			
New Jersey				
Broad silks	14			
Narrow fabrics	4			
Silk throwing	1			
Winding and warping	1			
	— 20			
New York				
Broad silks	1			
Narrow fabrics	2			
Warping and winding	2			
	— 5			
Pennsylvania				
Broad silks	11			
Narrow fabrics	2			
Silk gloves	1			
Silk throwing	2			
Velvets	1			
	— 17			
Rhode Island				
Broad silks	2			
	— 2			
Totals	53	49	58	45

the decrease is from forty-eight mills to thirty-eight.

In the woolen industry the decrease from forty-eight mills in 1904 to thirty-three in 1905 must be considered in connection with the fact that a large increase in worsted machinery has resulted from the enlargement of old mills and the building of large individual plants. As a consequence the number of mills is not a fair indication of the actual increase in the productive capacity of the machinery installed in new plants. Of the thirty-eight new woolen and worsted mills only four were located in the South and West, the others being divided almost equally between New England and the Middle States.

The knitting industry exhibits a similar tendency to concentrate; fifty of the seventy-

MILLS PROJECTED IN 1905.

	South	N. E.	Middle	West	Total
Cotton	15	3	1	1	20
Woolen	1	2	2	1	6
Knitting	7	.	7	.	14
Silk	1	1	1	.	3
Totals	24	6	11	2	43

nine new knitting mills being located in the Middle States; only two are located in New England, while the remaining twenty-seven are divided between the Southern and the Western States.

In spite of the dullness in some branches of the silk trade there were four more new mills erected in 1905 than in 1904. Here again concentration is the rule, New Jersey and Pennsylvania claiming thirty-seven of the fifty-three.

The principle of distribution of the miscellaneous mills corresponds with the developments of the various branches of the textile industry and calls for no special comment.

MILLS PROJECTED IN 1905 AS COMPARED WITH FOUR PRECEDING YEARS.

	1905	1904	1903	1902	1901
Cotton	20	4	18	29	40
Woolen	6	7	5	7	18
Knitting	14	28	11	9	28
Silk	3	3	4	5	9
Totals	43	42	38	50	95

Of the forty-three mills projected in 1905, twenty are cotton mills and fifteen of these twenty are located in the South. The plans for building new mills, however, are subject to change by reason of industrial conditions and consequently a record of projected mills must not be taken as guide for future construction.

Taking into consideration the special conditions affecting the textile industry at the present time, especially the scarcity of labor, the report as a whole is very satisfactory and indicates a healthy condition. Any marked developments in the future must wait upon the removal of the underlying causes for the present check to enterprise.

New Mill Construction During 1905.

EXPLANATION OF ABBREVIATIONS; 12/05=Expect to start December; 1905, etc.; S=Steam; W=Water Power; E=Electricity; D=Dye House.

NEW COTTON MILLS.

	Spindles	Spindles
CONNECTICUT.		
Norwich. Ufford, Frank. "Swiss" sponge cloths, towelling, bath towels, wash cloths, etc. Sell direct. (E.) (1/05)	..	..
Plainfield. Lawton Manufacturing Co. $250,000. Harold Lawton interested. Fancy cottons. Will have capacity 30,000 sp. (New buildings under construction)	..	..
GEORGIA.		
Acworth. Acworth Cotton Mfg. Co. $50,000. Orlando Awtrey, president; J. J. Northcutt, treasurer. Hosiery yarn. Average 16. (Under construction). Expect to start during 1906	5,000	..
Griffin. Central Mills. $100,000. J. J. Mangham, president; Douglas Boyd, vice-president; Jno. W. Mangham, secretary and treasurer; Allan Little, superintendent. Fancy cotton fabrics. Sell direct. (S.) Propose using electricity after first of the year. Will add two wings to accommodate 7,500 spindles to make yarns. (Formerly the Griffin Knitting Mill.)	..	144
MASSACHUSETTS.		
Boston. Acme Thread Works, 10 Thacher Street. $15,0000. E. R. Dyer, president; Leon J. Hazelton, treasurer, agent and manager. Sewing threads from 8 to 100; also mercerized threads, spools, tubes, cones. Sell direct. (E.) (Office also at New York city)..	..	..
Fall River. Fall River Iron Works. New mill under construction, 300x142 feet, 4 stories; will be equipped with 2,000 looms and 70,000 spindles	..	..
Lowell. Pentucket Narrow Fabric Mills. $5,000. Andrew Y. Rodger, president; David W. Dawar, treasurer. Narrow fabrics of all descriptions. Sell direct	..	12
Westboro. Mason, Joseph S. Narrow fabrics, tapes, etc.; sell direct	..	9
NEW HAMPSHIRE.		
Nashua. Wonalancet Company. $20,000. Lester F. Thurber, president; Harry H. Blunt, treasurer. Carded American and Peruvian cotton; 30,000 lbs. weekly. Sell direct. (E.) (12/05)	..	..
NEW JERSEY.		
Mt. Holly. Bidwell Towel Co. Jno. A. Bidwell, proprietor. Bar and sponge cloths. Sell direct. 256 Church St.	..	6
NORTH CAROLINA.		
Bessemer City. Vermont Mills. $50,000. D. A. Garrison, president; J. H. Wilkins, secretary; S. J. Durham, treasurer; E. A. Tucker, superintendent. Sheetings and drills.	3,080	96
Charlotte. Mecklenburg Cotton Mills. Wm. Coleman, president and treasurer; R. L. Tate, secretary and manager. Plain cotton goods.	15,000	375
Charlotte. South Atlantic Waste Co. $125,000. D. H. Anderson, president; J. W. Todd, treasurer; L. A. Lockwood, general manager; L. A. Lockwood, Jr., superintendent. Cotton waste. Sell direct. (E.) Erecting new buildings. Will probably start about January, '06.	..	..
Concord. Brown Manufacturing Co. $100,000. C. W. Johnston, president; E. F. White, treasurer; A. H. Harwell, superintendent. 3 yard sheeting. (E.) (Under construction. Will start about Jan., '06.)	7,600	200
Fayetteville. Fora Cotton Mill Co. $400,000. H. W. Lilly, president; J. K. S. Ray, treasurer; W. D. McNeill, agent. Print cloths. (E.) (Mill under construction; will be complete fall 1906; will have capacity of 25,000 spindles and 800 looms.)	10,000	250
Gastonia. Gray Mfg. Company. $175,000. Geo. A. Gray, president and treasurer; J. L. Gray, superintendent. All yarns, numbers 40s to 80s; single and ply, cones, tubes. R. A. Blythe, s. agt. (S.) (1/06.) (New buildings erected.)	10,240	..
Stanley Carpenter Manufacturing Co. $10,000. J. G. Carpenter, president; R. E. Carpenter, treasurer; Hal McDonald, superintendent. Cotton batting. Sell direct. (S.) (10/05.)	..	..
PENNSYLVANIA.		
Philadelphia. Bruner, Francis A. 1926-30 E. Boston Ave. Upholstery goods	..	6
Philadelphia. Cookson Bros. & Smith, Mutter and York Sts. Padding cloths. Sell direct. (S.)	..	4
Philadelphia. Eagles & Smith, Unity and Leiper Sts. Upholstery goods	..	2
Philadelphia. Fulton & Vandegrift, Church St. and Adams Ave., Frankford. John Fulton, superintendent. Beamers of plain and fancy warps; 3 frames. (S.)	..	..
Philadelphia. Hooks, Wm. & Co., 4300 No. Franklin St. Turkish towels. (Use 14s and 30s single cotton yarns.) Wm. Hooks, buyer.	..	3
Philadelphia. Primrose Tapestry Co. James Newton, proprietor, Oxford and Josephine Sts., Frankford. Tapestry curtains, table covers and novelties. Sell direct and through New York	..	4
Philadelphia. Stanley Mfg. Co., Adams and Church Sts. Twisting, winding, spooling and coning yarns; 10 twisters, 4 winders, 10 spoolers.	..	..
Philadelphia. Thompson & Hallowell, Indiana Ave. and A Sts. Upholstery goods, chenille and tapestry table covers and curtains. Sell direct	..	..
Philadelphia. Zenith Mills. Ralph Hirsh and Sol. Dryfoos, proprietors., S. W. corner Mascher and Somerset Sts. Curtains and draperies, cotton, mercerized and silk. Sell direct.	..	15
Philadelphia. Zimmerman, G., Fairhill and Rockland Sts. Upholstery goods. (Gas.)	..	2
Sellersville. Armure Tapestry Mill. $50,000. Albert Mitchell, president; David Mitchell, treasurer; James Brooks, agent and superintendent. Upholstery goods. Sell direct. (D.) (11/05.)	..	54
RHODE ISLAND.		
Davisville. Sylvania Mills. Leonard P. Davis, treasurer; F. W. Midgley, agent and superintendent. Cotton warping twine. Sell direct. (W.) 8 cards, 2 speeders, 4 twisters, 2 reels, 1 winder	800	..
SOUTH CAROLINA.		
Iva. Jackson Mills. $325,000. D. P. McBrayer, president; T. C. Jackson, asst. treasurer. 3 and 4 yd. goods. Jas. E. Mitchell Co., s. agts. (S.) (Under construction.)	21,000	650
Wellford. Jordan Mfg. Co. $25,000. C. E. Rodgers, president; S. V. Muckenfuss, treasurer. Towels and quilts. Converse, Stanton & Co., s. agts. (W.)	..	36
Yorkville. Neely Mfg. Co. Thos. P. Moore, president and treasurer. 8/3 warps, skeins and tubes. (S.) (7/05.)	3,500	..
TEXAS.		
Dallas. Dallas Machinery Waste Mfg. Co. M. H. Thomas, proprietor; D. Wooten, superintendent. Cotton and wool wiping and packing waste. Sell direct. (S.) (9/05.)	..	..

NEW WOOLEN MILLS.

No. Sets & Width Cds | Looms

CALIFORNIA.

Napa. Napa Valley Mfg. Co. Flannels, made into shirts 1 8

CONNECTICUT.

Central Village. Central Yarn Company. Woolen yarns. (Operating small mill adjoining Plainfield Woolen Co.) Installed new 100 h. p. engine, 160 h. p. boiler and 6 mules (380 spindles each) ..... 5 ..

Danielson. Pequot Worsted Co., The. $15,000. Thos. E. Curry, president; J. R. Davis, treasurer; C. S. Chase, agent; Frank Casey, superintendent. Worsted goods. Sell direct, and Thos. E. Curry, N. Y. s. agent. (S.)..... 20

MAINE.

Guilford. M. L. Hussey Woolen Co. $100,000. Chas. D. Shaw, president; M. L. Hussey, treasurer; John Houston, agent; A. C. Houston, superintendent. Woolen goods. (W. & S.) (D.) (1/06.) 4 36

MASSACHUSETTS.

Clinton. Earnsdale Worsted Co. $35,000. W. V. Brodmerkle, president; S. Shuman, treasurer; H. Shuman, secretary. High class worsted and woolen goods. Men's wear. (S. & W.)..... 2 25

Concord Junction. Concord Mills. $150,000. Edward Chapin, president; R. T. Robinson, treasurer. Men's worsted wear. 800 worsted spindles. Nixon & Thickens, N. Y., s. agts., buy yarns 61

East Brookfield. Esther Shoddy Mill. Wm. G. Keith. Wm. E. Ballam, superintendent and manager. Woolen shoddy ....

Easthampton. National Felt Co. C. H. Johnson, treasurer; C. E. Sturtevant, agent; Wm. Taylor, superintendent. Felts. Sell direct. (D.) (12/05.) ....

Huntington. Massasoit Woolen Mills. $40,000. F. C. Patterson, president and treasurer. Worsted and woolen suitings. Battelle, Hurd & Co. and Jas. Talcott, s. agts. (New building being erected; will start about Jan., 1906.)..... 7 30

Lawrence. Wood Worsted Mills. $1,000,000. Wm. M. Wood, president. New plant under construction; main building, 1,434 by 123 feet, six stories, with engine and boiler house, 104 by 300 feet. ....

Newton. Newton Woolen Co. J. J. Healy, agent. Woolen yarns, 10 run and coarser. Sell direct. (S.) (5/05.) ..... 6 ..

Uxbridge. Stanley Woolen Co. $100,000. Wm. E. Hayward, president; Arthur Wheelock, treasurer; Stanley H. Wheelock, secretary. Cassimeres and worsteds. Installed new set cards. (Purchased Calumet Mill.)..... ..

West Millbury. Arkonia Fabric Mfg. Co. $25,000. Albert Crenshaw, president and superintendent; Joseph C. Sullivan, treasurer. Men's wear goods. 18 broad and 1 narrow looms. Sell direct, 350 Broadway, New York. (D.) (S. & W.) (Leased weaving, dyeing and finishing departments of the Hoyle Mills.)..... ..

MICHIGAN.

Detroit. Armstrong Woolen Company, 21st and Porter Sts. Herbert Armstrong, president; Aikman Armstrong, treasurer. Worsteds and woolens. Sell direct and J. B. Fraser & Co., N. Y., s. agts..... 10

NEW HAMPSHIRE.

North Salem. Atlas Manufacturing Co. $150,000. J. C. Brown, president; Levi Taylor, vice-president; Howard L. Gordon, treasurer. Started operations with 36 looms, increased to 72. (Formerly Wm. H. Hanson's mill.)..... ..

NEW JERSEY.

Camden. Eavenson & Levering. Started commission combing; 2 cards, 3 combs. (S.) (10/05.)..... ..

Garfield. New Jersey Worsted Spinning Co. $1,000,000. E. Ruchdeschel, president; C. Bahnsen, treasurer; Rudolph Kleinjung, superintendent and agent. Worsted yarns. New buildings under construction; expect to start in spring..... ..

Jersey City. Foot Manufacturing Co., 36-40 Germania Ave. Wool felt specialties..... 2 ..

Paterson. New Jersey Shawl Co. $20,000. Edward Moeller, president; Ludwig Littauer, treasurer; A. Salsberg, superintendent; worsted and silk shawls. Sell direct. (S.)..... 9

Richland. Thomas B. Evans. Patent fire-proof rugs; 8 looms..... ..

Somerville. Laurel Manufacturing Co. Gould M. Coite, president; H. L. Wissing, secretary and treasurer; F. Wink, superintendent; C. Wink, buyer. Worsteds, fancy and piece dyes for men's wear and dress goods. Sell direct. (4/05.).. ..

Trenton. Princeton Worsted Mills. John W. Nary and Arthur Schwarz, proprietors. Fancy and piece dye worsteds. (D.) (Located in Alryan Mill.) 60

NEW YORK.

Auburn. Golden Fleece Blanket Co. H. C. Nellis, superintendent. Blankets. (D.) (2/05.)..... 6 27

Cohoes. Star Woolen Company. $100,000. M. F. Aufsesser; David Dwyer, superintendent. Shoddies. 12 sets cards. (Occupy building formerly used by the Star Knitting Co.)..... ..

NORTH CAROLINA.

Kernersville. Crews Mfg. Co. $50,000. T. A. Crews, president; J. W. Crews, treasurer; J. R. Greer, superintendent. Blankets. Farish-Stafford Co., s. agts. (S.)..... 1 8

PENNSYLVANIA.

Chester. McCoy & Thompson. Commission combing and top making. Bradford system. 4 combs. ....

Philadelphia. Crix Company, Howard and Lehigh Aves. Robt. F. Shaen, president; Robert H. Shaen, agent; Thomas Whitehead, superintendent. Men's wear worsteds. Sell direct..... 50

Philadelphia. Empire Cloth Mfg. Co. Empire Mills, Kensington Ave. and Harold St. Wm. Barras, president and general manager. Raincloths and men's and women's wear. Sell direct. 10

Philadelphia. Graham, David & Co., 1727 Gillingham St. David Graham, superintendent. Fancy worsted suitings. Sell direct. (S.)..... 4

Philadelphia. Hudson, Thomas, 1727 Gillingham St. Ingrain carpets. (Use 2 ply 16s cotton.) Sell direct. (S.) 2

Philadelphia. Rhodes & Dyson, Oxford and Joseph Sts. Art squares. Sell direct..... 3

Philadelphia. Riley, Edward, Mascher and York Sts. Cotton worsteds. Sell direct..... 10

Philadelphia. Shetland Worsted Mills. Riggs, Worthington & Simonds, Ashmead and Wakefield Sts. Men's wear and worsted and cotton dress goods. Duval, Cone & Terhune, N. Y. s. agts. (S.) (Buy cotton and worsted yarns.).. 21

Philadelphia. Wright & Hall Textile Co., Howard and Jefferson Sts. Loring C. Hall, president and buyer; John Wright, treasurer. Cotton worsteds and dress goods. Sell direct..... 57

RHODE ISLAND.

Burrilliville. Clear River Mills. $100,000. J. A. King, president; C. F. Potter, treasurer; O. T. Inman, agent and superintendent. Twist yarns and men's wear cloth. Sell yarns direct. (D.) (S. & W.) (5/05.)..... 46

Providence. Hodgson Worsted Co. Started new plant. Calender Bldg. Worsted and novelty yarns. (11/05.) ....

Woonsocket. Woonsocket Spinning Company. $12,000. Joseph Rogister, president; Albert Tamboise, treasurer; Joseph Rogister and D. Servais, superintendents. Woolen and cotton yarns, 1 to 60 cut. Sell direct. (W. & E.) (4/05.)..... 3 ..

SOUTH CAROLINA.

Columbia. American Press Cloth Company. $50,000. John J. Seibels, president and treasurer; Thomas Taylor, Jr., secretary; Benj. F. Taylor, vice-president and general manager. Camel's hair and press cloth for hydraulic presses. (S. & E.) (12/05.)..... 8

NEW KNITTING MILLS.

No. Kfg. Machines

ALABAMA.

Talladega. Selecta Hosiery Mills. $50,000. New building erected. Sam Goldberg, president; W. H. Boynton, secretary and treasurer.....

CALIFORNIA.

Los Angeles. Pacific Knitting Mills Mfg. Co. $30,000. Chas. C. Hurd, president; H. M. Hurd, treasurer. Men's balbriggan underwear. (2/05.).....

GEORGIA.

Columbus. Perkins Hosiery Mills. C. L. Perkins, president; H. W. Wade, treasurer. Yarns, 5 to 24s and hosiery, 84 needle, mixed, all colors and weights. Sell direct. C. L. Perkins, buyer. 5,000 cotton spindles, 3 sewing machines. (D.) (E.) (9/05.) 250

Dallas. Dallas Hosiery Mill. $10,000. W. E. Spinks, president. Men's and ladies' gray hose. (S.).....

Dalton. Dalton Knitting Mills. $10,000. W. M. Jones, president; T. R. Jones, treasurer; J. Allen Crews, superintendent. 84 needle half-hose. (S.).....

Fairburn. Fairburn Hosiery Mills. $25,000. S. L. Roan, president; B. S. Roan, treasurer C. A. Ricks, superintendent. Misses' and children's ribbed hose. 5 loopers. Sell direct. (S.)..... 30

ILLINOIS.

Chester. Chester Knitting Mills. $20,000. W. Barnard, president; L. H. Gilster, treasurer; J. H. Rickman, superintendent. .....

Chicago. Western Knitting Mills. Gorchakoff & Siegal, proprietors. Sweaters, jackets and knit goods; men, women and children. 2 sewing machines. 8

INDIANA.

Indianapolis. The Indianapolis Knitting Mills. $50,000. F. B. Harbottle, president; W. E. Stevenson, treasurer. Men's balbriggan underwear. Sell direct. (S.) 50

IOWA.

Elkhorn. Olsen & Sons Knitting Co. Knit goods for men, women and children, wool and worsted sweaters. O. N. Olsen, buyer. Sell direct. (G.) 3 sewing machines. (8/05.)..... 3

Shenandoah. Shenandoah Knitting Mills. $30,000. Paul F. Vogel, president; Earl R. Ferguson, vice-president; Arthur W. Jones, treasurer; Jesse B. Sutton, secretary. Men's seamless cotton half hose. 60 machines. Sell direct. (S.) Formerly Premier Hosiery Mills, removed here. New buildings erected. .....

KENTUCKY.

Paducah. Aycock Hosiery Mills. R. C. Aycock, proprietor. Misses' fine gauge lisle thread hose. 23 ribbers, 5 loopers. Sell direct. (E.) (11/05.) To build an addition about March, '06, and add 10 knitters, 15 ribbers and 3 loopers; also dye house. 17

MASSACHUSETTS.

Clinton. Clinton Hosiery Co. Henry Dio, proprietor. Fine and high grade hosiery. 1 ribber, 1 looper, finish. 2

Taunton. Taunton Knitting Company. $50,000. Chas. L. Macomber, president; Abbott F. Lawrence, treasurer; Wm. Hurd, superintendent. Spring needle ribbed underwear. American Knitting Mills Co., s. agents. (D.) (E.) (New buildings erected.) (9/05.) 37

MICHIGAN.

Detroit. Wolverine Knitting Co. $25,000. Wm. Ruidskoff, president; Henry Ruidskoff, treasurer; Sam'l Ruidskoff, buyer. Ladies' knit goods, infants' wear, shawls, scarfs. 6 sewing machines. (E.) Started Aug., '05.....

Saranac. Saranac Knitting Co. $10,000. Edwin Wallington, president; B. N. Talcott, vice-president; H. T. Johnson, secretary; W. E. Densmore, treasurer; C. O. Gunther, manager. Hosiery. Sell direct. (6/05.) .....

Williamston. Williamston Knitting Co. $20,000. F. P. Van Buren, president; B. Wilson, treasurer; E. L. Watkins, superintendent. Gloves and mittens. Sell direct. (S.) (D.) (4/06.).....

MONTANA.

Helena. Montana Knitting Mills. H. S. Benson, president; T. R. Hinsdale, treasurer; E. B. Morehead, secretary and J. H. Morehead, manager. Knit goods, wool, cotton and silk; union suits, underwear and sweaters a specialty. 7 finishing machines. (E.) (3/05.)..... 2

NEW JERSEY.

Camden. Smyth, James R., 661 Van Hook St. Ladies' and children's hosiery and men's half hose. 4 ribbers, 1 looper. (E.)..... 40

Jersey City. Katz Bros., 44 Coles St. Ladies' blouses, etc. 1 sewing machine..... 3

Vineland. Karl & Levy Hosiery Co., Inc. $50,000. S. J. Levy, president; J. Karl, agent. Ladies', men's and infants' hosiery. Use cotton on cones, 10s to 60s. 2 sewing machines. Sell direct. (S.) (8/05.) 71

NEW YORK.

Brooklyn. Davidson, Mr., 402 Scholes Street. Sweaters, blouses, etc. Sells direct..... 6

Brooklyn. Lion Knitting Mill. L. Oboler, prop., 155-157 Stagg St. Sweaters..... 10

Brooklyn. Shapiro, B., 778 Flushing Ave. Woolen socks and stockings..... 6

Buffalo. Hewitt Rubber Co. Installed few looms for weaving fabrics used.....

Cohoes. Laughlin Mfg. Co. Women's underwear. Capacity 100 dozen per day. (10/05.).....

Greenwich. Greenwich Knitting Company. $100,000. M. C. Rogge, president; H. Cottrell, treasurer. Ladies' ribbed underwear. A. S. Haight & Co., s. agents and sell direct. 125 sewing machines. (S. & W.) (2/05.)..... 112

Little Falls. Rex Knitting Company. $40,000. Frank Senior, president; E. I. Stinson, treasurer. Sweaters. 7 sets cards, 10 sewing machines. Webb & Alford, N. Y., s. agts. (D.) (S.) (6/05.) Plant formerly run by Titus Sheard Co.)..... 30

New York. Domestic Knitting Co. A. Greenberg and A. Frankel, props., 36 E. Broadway. Ladies' and men's sweaters and fancy knit goods. 4 sewing machines 6

New York. Enterprise Knitting Works, 161 E. 106th street. Joseph Markowitz, manager and buyer. Sweaters, blouses, gloves and fancy knit goods. Sell direct 3

New York. Levin, W., 84 Avenue D. Ladies', men's and boy's sweaters, jackets, stockings. 1 sewing machine 6

Niagara Falls. Visor Knitting Mills. $40,000. Wm. Gorman (London, Ont.), president; H. W. Scott, treasurer and superintendent. Mufflers and toques. 2 sewing machines. Sell direct. (E) (2/05) 7

Poughkeepsie. Lawrence & Caven. Top shirts and linen mesh underwear, men's, women's and children's. (Purchase mesh.) 6 sewing machines. (E) Sell direct. .....

Stuyvesant Falls. Ashley, Charles L. Gloves, caps, mittens and sweaters. (2/05) 10

Whallonsburgh. Riverside Mills. Eli Dupree, buyer .....

Whitehall. Fleeman Knitting Company. $50,000. J. R. Fleeman, president and superintendent; C. E. Holden, treasurer. Ladies, rib goods, misses' and children's. Sell direct. (S) 50 sewing machines (1/05) 75

NORTH CAROLINA.

Albemarle. Lillian Knitting Mills Co. $30,000. R. A. Crowell, president; A. L. Patterson, treasurer and buyer. 15 to 40s yarn. 50 to 100 knitting machines. (S) (D) .....

Durham. Stone Hosiery Company. $25,000. N. W. Greenhill, president; J. E. Bowling, treasurer; Dr. E. H. Bowling, agent; Miley F. Strickland, superintendent. Men's seamless half-hose. (E) (Expect to add 6 more machines in December. Entire product sold to Lynchburg Hosiery Mills to Sept., 1906, after that propose installing dye house and be on the market.) 19

High Point. Centaur Knitting Company. $50,000; Ladies' 176 needle seamless hosiery. 2 sewing machines. Steele & Caruthers, s. agts. (D & B) (3/05) New building erected. 42

Merry Oaks. Merry Oaks Hosiery Co. J. W. Boling, pesident; T. C. Lawrence, secretary and treasurer; J. E. Gunter, superintendent. Half hose 10

Statesville. Statesville Knitting Mills. $125,000. C. M. Steel, president; H. L. MacColl, treasurer and buyer. Men's and women's hosiery. 2 sewing machines. 6 loopers 30

OHIO.

Barnesville. Barnesville Hosiery Co. $15,000. G. E. Hunt, president; J. W. Wise, treasurer and buyer. 1 set cards. Wm. Iselin & Co., s. agts. (D) (G).. 25

PENNSYLVANIA.

Allensville. Zerby, J. T. & V. A. J. T. Zerby, superintendent; V. A. Zerby (3129 W. Cumberland street, Phila.), buyer. Half hose. Sell direct. (Gasoline.) 20

Doylestown. Brewer & Drenk. Cotton hosiery. (Use 8 to 30 carded yarn.) Sell direct. (D) (S) 2 sewing machines. 30

Hawley. Hawley Knitting Works. Clemens Lencke, proprietor; J. J. Weingart, agent. Knit goods. Use worsted, wool and cotton yarn. 3 sewing machines. Sell direct. 6

Leesport. Eagle Knitting Mills Co., Ltd. A. F. Mogel, president; Wm. D. Burkey, treasurer; Roscoe Bowman, superintendent. Ladies' summer underwear. (S) (11/05) ....

Millheim. Millheim Knitting & Mfg. Co. $20,000. J. H. Hoffman, president and superintendent; A. A. Frank, treasurer. Men's, misses' and infant's hosiery. Farish-Stafford Co., Cozzens & Carroll, s. agts. (2/05) ....

Myerstown. Myerstown Knitting Mills. Geo. A. Martin & Son. Hosiery. 70

Philadelphia. Adams Hosiery Co., 2420 Waterloo street. M. K. Adams, superintendent and buyer. Women's and misses' lace hosiery. 1 looper. 1 sewing machine. Sell direct and L. J. Riggins, N. Y. 10

Philadelphia. Bergman, Adolph, 5019 Germantown avenue. Cardigan jackets. Sell direct. 1

Philadelphia. Eastern Penitentiary, 21st street and Fairmount avenue. Half hose. Hand power. Sell direct. 100

Philadelphia. Eddishaw Bros., Pastorius and Osceola streets. Henry Eddishaw, manager, superintendent and buyer. Fine grade ladies' and misses' hosiery; 11 loopers; 2 sewing machines.... ..

Philadelphia. Fowler Bros., Hawthorne and Dyre streets, Frankford. Hosiery. Sell direct. 6

Philadelphia. Franklinville Dye Works. Lawrence, Luzerne and Fifth streets. J. W. Koeberle, manager. Ladies' hosiery, half hose and rib goods; 3 sewing machines; 12 loopers. 100

Philadelphia. Greaves, John W., Tulip street, below Venango. Half hose; using 18s to 40s cotton yarns; 2 sewing machines. Sell through N. Y. ... 10

Philadelphia. International Silk Knitting Co., N. E. corner Jasper and York streets. $25,000. Joseph Scholes, president; Wm. J. Geggis, treasurer and buyer. Full fashioned silk hosiery; 2 sewing machines. Sell direct. (6/05) 6

Philadelphia. Kaser, Fred, & Co., 3562 Witte street. Half hose; 1 ribber, 1 looper. Sell direct. 5

Philadelphia. Lessig & Harrison, 1907 No. 6th street. W. J. Harrison, superintendent. Fancy half hose; 2 sewing machines. (S) 32

Philadelphia. Light Bros., Mascher and Oxford streets. Infant's and men's half hose. 10

Philadelphia. Little Admiral Knitting Co., 240 Chestnut street. Juvenile jackets, sweaters, etc. (10/05) ....

Philadelphia. Mayflower Knitting Mills, Unity and Leiper streets, Frankford. Mr. Martin, manager. Elderdown, jersey cloths and general line knit goods; 1 napper; 2 chinchillas; 1 winder. 12

Philadelphia. National Hosiery Co., Sepviva and Hazzard streets. E. J. Aucott, superintendent. Full fashioned hosiery. Sell direct. 100

Philadelphia. Oneida Hosiery Co. (N. Y.). Branch mill started at Frort and Oxford streets. Children's and misses' ribbed hosiery. Seth Bittle, manager. ....

Philadelphia. Reiser, I., 73-75 Laurel street. Finishing hosiery and underwear; 10 sewing machines. sell direct. ....

Philadelphia. Schmitz, A. E., 905 No. 2d street. Hand knit and crochet goods. Sell direct. ....

Philadelphia. United Knitting & Mfg. Co. J. & L. Rubin, 441 No. 2d street. Ladies' blouses, golf vests and Norfolks; 8 sewing machines. (E) 8

Philadelphia. Vitality Hosiery Co., 1626 Mascher street. Reinforced hosiery for men and women. S. Einstine, N. Y., s. agt. (S) ....

Philadelphia. Weston, James, 1631 Huntington Park avenue. Woolen gloves; 1 sewing machine. Sell direct. Hand power. 14

Philadelphia. Weston, Thomas D., Co., 1115 So. 15th street. Wm. L. M. Field, president; Wm. L. Waring, vice-president; Thomas D. Weston, secretary, treasurer and manager. Worsted golf gloves; 6 sewing machines; 4 loopers; 1 winder. ... 8

Reading. Lance, E. H. & A. C. Children's and misses' ribbed hosiery. 5

Reading. Meinig, Richard, & Co. Silk gloves. ....

Scranton. Knopfel, David, 502 Everett street. Blouses, sweaters, jackets, etc. ....

St. Mary's. St. Mary's Knitting Co. C. F. Haas, manager and buyer. Men's socks, ladies' and children's hosiery and wristlets. 25

Topton. Topton Underwear Mills. O. C. Rohrbach, proprietor. Ladies' fine underwear; 4 sewing machines. (S) (9/05) 8

TENNESSEE.

Cleveland. Cleveland Hosiery Mills. $50,000 authorized. ($35,000 paid in.) G. L. Hardwick, president; C. H. Weiss, treasurer and superintendent. Misses' hose. (D) (New buildings erected.) 125

Johnson City. Johnson, W. B. Ladies' and half-hose. Sell direct. (D) (E) 3 sewing machines. ... 18

Morristown. Bean Knitting Co. (Partnership G. A. Russell, John B. McCord, C. O. Bean.) (C. O. Bean, general manager. Men's all wool hose, coarse and medium; 1 set; sell direct. (D) (Propose adding children's rib goods.) 12

Rockwood. Rockwood Mills. $40,000. J. F. Tarwater, president; J. A. Boyle, treasurer; Garnett Andrews, general manager; J. A. Huff, superintendent. Misses' fine gauge hosiery. Sell direct. (D) (S) (11/05) 125

WISCONSIN.

Sheboygan. Hand Knit Hosiery Co. $7,000. L. A. Bentz, president; A. M. Bentz, treasurer. Woolen hosiery, men's, women's and children's, also hand knit goods, woolen mittens, etc.; 1 sewing machine. Sell direct. (D) (S) 10

NEW SILK MILLS.

DELAWARE.

Marshallton. Marshallton Silk Weaving Co. Geo. W. Spicer, Jr., proprietor. Black taffetas and other silks. 16

CONNECTICUT.

Mansfield Centre. Brown, H. L. & Co. Tram and floss. Throwing a specialty. Sell direct. (W) (5/05) ....

Meriden. New England Braid Co. L. Adlman and H. Adlman. Silk braid and soutache. Sell direct. (E) (5/05) ....

Norwich. Green, M. J. Thomas J. Green, superintendent. Silks. 60

Norwich. Norwich Silk Company. Geo. A. Smith, agent; S. A. Gager, superintendent. Machine twist and sewing silk. (S) (4/05) ....

Putnam. The Silk Fibre Co. $50,000. Frederick B. Hays, president; Dexter Elliott, treasurer; Thomas Park, superintendent. Italian silk blankets, etc. ..... 1?

GEORGIA.

Augusta. Singleton Silk Mfg. Co. Murray Silk Mill. Purchased Isaetta Silk Mill and equipped for spinning silk yarns. (11/05) ....

MASSACHUSETTS.

Hopkinton. Herminia Silk Mfg. Co. (Branch mill R. & H. Simon, Union Hill, N. J.) Broad silks. ..250

Lowell. Dalrymple, J. A. & Co., 285-287 Thorndike street. A. Y. Rodger, superintendent. Silk ribbons ....

NEW JERSEY.

Passaic. Alexander Company. $35,000. A. C. Huber, president; H. B. Dickinson, treasurer. Vestings and dress fabrics; 8 broad and 50 narrow looms. Sell direct. (S & W) ....

Paterson. Adelman, Simon. 135 Sherman avenue. Archie Adelman, superintendent. Silk soutache; 35 spindles; 44 braiders. Sell direct. (E) ....

Paterson. American Silk Manufacturing Co. Congdon Mill. $10,000. M. Bernstein, president; J. Bernstein, treasurer. Silks, taffetas, peau de soies, etc. Sell direct. (E) (6/05) 42
Paterson. Anchor Silk Co. $10,000. Broad silks. .. 14
Paterson. Demarest Silk Co. $50,000. G. W. E. Demarest, president and treasurer. Broad silks; 160 spindles. Fleitmann & Co., s. agts. (S) 10
Paterson. Diamond Silk Co. Wm. B. and Louis W. Amel, proprietors. Harding Mill. Broad and dress silks; 292 spindles; 54 looms. Sell direct. ... ..
Paterson. Fashion Silk Co., Cliff street and Belmont avenue .....
Paterson. Howard & Burke. Hamilton Mill. $25,000. Throwing. .....
Paterson. Hurby, Halbach Silk Co. $5,000. Chas. Halbach, president; Oscar Hurby, treasurer and buyer. Silk ribbons. L. F. Dommerich Co., N. Y., s. agts. (2/05) .....
Paterson. Luvan Silk Company. $50,000. Herbert Lubelski, president; John R. Van Blascom, treasurer. Broad silks; 30 looms. Bachmann, Emmerich & Co., N. Y., s. agts. .....
Paterson. Mueller, Chas. E. Ribbons; 6 looms. E. L. Heleker, s. agt. (3/05) .....
Paterson. Pansy Silk Co., 111 Spruce street. Broad silks. I. Pansy, buyer. 18 looms. Sell direct. .....
Paterson. Prudent, Jacques. Essex Mill. Broad silks; 12 looms. Sell direct. .....
Paterson. Roskop & Kirk. Essex Mill. Broad silks, black taffetas; 4 looms. Sell direct. (To increase looms.) .....
Paterson. Sheiden & Leach, Governor and E. 18th streets. Taffetas in blacks and colored; 20 looms. John Sprich, with Rusch & Co., New York, s. agt. .....
Paterson. Silk City Warping Co. $10,000. Hugh Watson, president; J. Gerli, treasurer. Winding and warping. .....
Paterson. Smith & Wollenberg. Meredith Mill. Baby ribbons; 6 looms. .....
Paterson. Spoer & McGinley. Cardinal Mill. Broad silks; 44 looms. F. Vietor & Achelis, Dept. W. E. Derby & Co., N. Y., s. agts. (S) .....
Paterson. Weiss & Siena Co., Mulberry and River streets. Broad silks; 12 looms. Sell direct. .....
West New York. Hudson Silk Co. $100,000. Edward M. Rand, president; Frank C. Guenther, treasurer. Broad silks; 30 looms. Wm. E. Derby, care Vietor & Achelis, s agts. (S) (12/05) .....

NEW YORK.

Brooklyn. Villa Stearns Co., 171 Wallabout street. H. H. Henderson, superintendent and buyer. Deal in raw and manufacturers thrown and dyed silk and insulating silks. .....
Canisteo. Canisteo Silk Company. $30,000. (E) (11/05) .....
College Point. Thiele & Taubert. Commission winding and warping; 1,000 spindles; 6 warpers. Also tie silks; 4 broad looms. Sell direct. .....
Long Island City. Grahl, R. Richard. Book binders, headbands, tapes, ribbons, etc. Sell direct. (Gas) .....
New York. Ontario Thread Co., 35 East 8th street. H. J. Lipman, manager and buyer. Tubing and spooling mercerized and silk threads. Sell direct to manufacturing trade. .....

PENNSYLVANIA.

Allentown. Unity Silk Co. $100,000. W. R. Yeager, president; Leo Schimpff, treasurer; Geo. Bitzer, superintendent. Broad silks; 100 looms. John Sprich, s. agt. (W) (7/05) .....
Bally. George W. Melcher. Silks. .....
Bangor. Bangor Silk Co. W. R. Thomas, Jr., president; A. S. Baker, vice-president; Andrew Ayer, secretary and treasurer. Broad silks; 100 looms. (11/05) New building erected. .....
Bangor. Crown Silk Manufacturing Co. $50,000. Jacob Raub, president; Ellwood Hay, treasurer; Jacob Thissen, superintendent. Silk gloves; 2,000 spindles; 4 looms. (D) (E) (10/05) .....
Burmont. Watt Manufacturing Co. D. Edgar Coe, president; G. Oswald Calvert, secretary and treasurer. Silk fabrics. .....
Dushore. Loyal Sock Silk Co. $25,000. J. H. Turrell, president; Samuel Cole, treasurer; A. R. Morrison, secretary and manager. Broad silks; 30 looms. Sell direct. (S) (12/05) .....
Easton. Northampton Silk Co. $16,000. James Smith, president; E. J. Richards, treasurer; H. J. Haytock, secretary and manager. Broad silks, fine black taffetas, peau de soie a specialty; 50 looms. Sell direct. (S) (7/05) .....
East Plymouth. Luzerne Silk Company. Beckley Bros., proprietors. Silk throwing; 15,000 spindles. (12/05) .....
Hazleton. Hazleton Silk Company. W. H. Eidam, treasurer. Bachmann & Emmerich, s. agts. (E) 10 looms. (3/05) .....
Philadelphia. Excelsior Braid Mills, 346 Walnut Lane, Germantown. Silk and cotton braids; 181 braiders. Fleming & Chapin, s. agts. .....
Philadelphia. National Trimming Co., 133 Arch St. Dress, window shade and upholstery trimmings. (Use cotton, mercerized and silk yarns.) Sell direct. .....
Philadelphia. Oxford Silk Mills, Front and Oxford streets. $30,000. W. H. Trainer-Kerr, president; H. J. Felt, treasurer; E. Scherr, manager and superintendent. Ribbons. Sell through N. Y. 30
Philadelphia. Posner, S. A. & Co., N. W. cor. Diamond and American streets. 20 broad looms; 2 winders; 2 spoolers; 2 warping mills. .....
Philadelphia. Waterhouse, Albert, 110 Oxford street. Verona plushes; 1 winder; 1 spooler. Sell direct. 8
Pittsburg. Pittsburg Silk Works. M. Blakey & Sons Silk Co. Broad silks. Sell direct. .....
Reading. Steiner & Talcott Silk Co., The. $25,000. Wm. H. Talcott, president; Chas. Steiner, treasurer and superintendent. Broad silks, dress silks. S. Peieris & Co., s. agts. (S) (11/05) 50
Towanda. Towanda Silk Mill Co. $40,000. W. J. Hartman, president and manager; W. H. Evans, treasurer. Throwing. (S) New mill built. .....

RHODE ISLAND.

Central Falls. Leader Weaving Company. $100,000. Harry C. Curtis, president; Thos. W. Bicknell, treasurer; Harry D. Hewett, agent and superintendent. Satins, silk fabrics, taffetas, etc.; 800 spindles; 50 looms. Sell direct. (Office Westminster street, Providence.) .....
Pawtucket. Imperial Silk Mills Co., The., Charlton avenue. James F. Barry and William W. Harrison. Highest grade of goods, "Imperial Silk," "Imperial Henriettas" and "Imperial Cashmeres." .....

MISCELLANEOUS NEW MILLS.

ALABAMA.

Huntsville. Huntsville Bagging & Tie Co. $5,000. I. Schiffman, president; I. Wind, treasurer; J. P. Carlisle, superintendent. Manufacture and remake bagging and tie. Sell direct. (E)

CANADA.

Canada, Ontario. Welland. Plymouth Cordage Co. (Plymouth, Mass.) Building large mill here.

GEORGIA.

Athens. Aberdeen Linen Mills. A. H. Hodgson, president; W. T. Bryan, secretary. Toweling.

ILLINOIS.

Chicago. Boynton Wool Scouring Co. $35,000. Geo. A. Boynton, president; Geo. W. Boynton, treasurer. Wool scouring.
Chicago. Western Textile Fibre Co., Root and La Salle streets. $25,000. J. G. Smith, president; Fred Myer, treasurer and buyer. Dyeing and bleaching yarns, raw stock and reclaiming or converting textile fibres. Sell direct. (S)

MARYLAND.

Baltimore. Johnson-Dukehart Co., The. $25,000. Jos. D. Chesney, president; J. D. Chesney, Jr., treasurer; Jos. W. Casey, manager; Harrison Pierce, superintendent. Cotton and linen fish netting. 18 knitting machines. Sell direct. (E)

MASSACHUSETTS.

Barrowsville. Barrowsville Bleachery Company. $75,000. Frederick S. Hall (Taunton), president; Franklin H. Downs, treasurer; F. E. Burbank, manager. Bleaching, dyeing and finishing cotton goods. (11/05)
Chelsea. Chelsea Braiding Company. J. W. Wood, manager. Elastic cords and braids for suspenders

and all kinds of cotton yarns. 30 braiders. Sell direct. (1/05)

Lawrence. Eastern Finishing Co. Water-proof canvas. New building erected. 70 by 25 feet, one story.

No. Attleboro. Royal Textile Co. $15,000. D. G. Sunderland, president; Arthur T. Parker, treasurer. Shoe laces.

Peabody. Leonard, H. S., 92 South St., Boston. Wool scouring. 1 machine.

Springfield. American Oriental Rug Company, The. F. C. Newton, president; Eugene E. Sykes, treasurer. Rugs from old carpets.

MICHIGAN.

Port Huron. The Summers Fibre Co. Erecting new plant, 100 by 70 feet, for spinning twine, with capacity of 5 tons per day at start; binder twine a specialty.

NEW JERSEY.

Garfield. Garfield Silk Dyeing & Finishing Co. $25,000. Jno. B. Seyer, president and superintendent; Sam Longbotham, treasurer. (8/05.)

Gloucester. Gloucester Braiding Co. Plain and fancy braids. Office, 1102 Real Estate Trust Bldg., Philadelphia.

Passaic. Textigrave Company. $20,000. Bertram H. Saunders, president; John McLuckie, treasurer. Designing and engraving for textile printing.

Paterson. American Silk Thread Finishing Co. $25,000. Joseph B. Whitney (Brooklyn), president; John W. Steward, treasurer; Xaver Bossart, agent and superintendent. Finishing and lustering silk, cotton, etc. (6/05.)

Paterson. Excelsior Dyeing Co., 159-161 Marshall St. Wm. Hewitt, buyer.

Paterson. New Process Dyeing & Finishing Co., Inc., 178-190 Water St. Dye and finish velveteen, corduroys and plushes.

Paterson. Novelty Velvet Co. $50,000. Moise Rivollier, president and superintendent; Eli Mirandon, treasurer; Eugene Rivollier, agent. Cutting all kinds of figures on satin silks and making a velvet effect of same. Commission work. (10/05.)

Trenton. Bloom & Godley Company. $100,000. John F. Godley, president; Jacob C. Bloom, treasurer. Bed comfortables, etc. 11 cotton cards. (S.)

NEW YORK.

Brooklyn. Meister, Wm., 56 N. Front St. Dyeing and finishing, specialty ribbons.

Buffalo. Niagara Cordage Co. $100,000. John J. McWilliams, president; S. N. McWilliams, treasurer. Cordage. (9/05.)

PENNSYLVANIA.

New Cumberland. Pennsylvania Dye & Bleach Works. Sam'l F. Peters, president, treasurer and superintendent. Dye and bleaching hosiery, underwear, etc.

Philadelphia. Colonial Dye Works. Alexander R. Cullin, Mascher St. and Columbia Ave. Dyeing cotton, woolen and worsted skein yarns and mercerized yarns. Capacity 3,000 lbs. per day.

Philadelphia. Delmar Carpet Mill, 145 Oxford St. Rugs from old carpets.

Philadelphia. Fibre Rock Mfg. Co., Manayunk. $20,000. Joseph C. Noble, president; Edgar Stafford, treasurer. Asbestos yarns and fabrics. 2 sets, 360 mule spindles. Sell direct. Firm, buyers.

Philadelphia. Fleming, Chas. H., Collins and Westmoreland Sts. Hosiery Dyeing.

Philadelphia. Liffe, John, 14 and 16 N. Front St. Skein silk dyeing.

Philadelphia. Kensington Burling Co., Irvine Carr., 2632-36 Mascher St. Burling and mending woolen and worsted goods.

Philadelphia. Michle, Andrew Y., 2nd and Diamond Sts. Hair cloth; 10 looms. Sell direct.

Philadelphia. Orth, Wm. Co., 2731 No. Sixth St. H. W. Perrine, treasurer; Wm. Orth, manager. Beaming all kinds cotton and mercerized warps.

Philadelphia. Peerless Bleach Works. Flynn & Kelly, proprietors; P. F. Flynn, superintendent and buyer. Frankford. Bleach cotton, woolen and linen fabrics; specialty knit goods.

Philadelphia. Philadelphia Winding Co., Kensington Ave. and Huntingdon St. John Fowler, manager. Coners and reelers fine yarns. 5 winders, 1 reel, 1 quiller, 1 Foster coner. G. S. Lings & Co., N. Y., s. agts. (S.)

Philadelphia. Richmond Dye Works, Howard and Thompson Sts. Mark C. Notz, manager. Dyeing cotton yarns, hosiery, plain, mercerized cotton and artificial silks; specialty sulphur blacks.

Philadelphia. Smith & Quicksall, Dyer and Willow Sts. Finishing cotton goods; specialty finishing hair cloth.

RHODE ISLAND.

Cranston. Narragansett Finishing Co. $25,000. C. J. Obermayer, president; T. P. Hines, treasurer. Dyeing and finishing cotton linings. (S.)

Washington. Elite Spinning Co. J. Howard Dews, treasurer; W. L. Trusdell, agent. Custom or commission twisting only. 480 mule spindles.

Woonsocket. New England Dyeing & Bleaching Co. Dr. Ed. J. Auge, treasurer; Max Job, superintendent. Dyeing and bleaching cotton or wool yarns; also raw stock.

Woonsocket. Woonsocket Dyeing & Bleaching Co. $10,000. G. Frederichs, president and general manager; Charles Proulx, secretary and treasurer. Specialty worsted top dyeing.

TEXAS.

Dallas. Texas Rug & Renovating Co. D. A. Lingo, president; D. C. Lingo, treasurer. Rugs; 7 looms. Sell direct. (E.) (New building erected.)

WASHINGTON.

Chehalis. American Flax Fibre Co. $250,000. Theo Poindexter, president; Fred A. Greenwood, treasurer; Geo. E. Nolan, manager. Sell direct. (S.) (9/05.)

Projected Industries.

Under this head are enumerated such projects as are now in course of construction, or which in all probability soon will be, but which are not sufficiently far advanced to be properly identified in the list of new mills.

COTTON.

CONNECTICUT.

Manchester. Sam Hird interested in new company organized with $120,000 to manufacture fine wash cotton goods, zephyrs, madras and mercerized cottons; 350 looms. (Have purchased the Eastern Biscuit Co.'s plant and will build addition to same.)

South Norwalk. Halhnel, Herman. Laces. Proposed.

GEORGIA.

Lagrange. Elm City Cotton Mills. C. V. Truitt, Fuller E. Callaway and others interested in cotton mill proposed. $250,000 capital. 10,000 spindles.

Maysville. Wm. C. Burns (Tech. School, Atlanta), interested in project to establish a 5,000 spindle mill at this place with $100,000 capital.

Villa Rica. Villa Golden City Cotton Mills. J. W. Green, president; W. C. Pope, secretary; 5,000 spindles; 160 looms.

Watkinsville. N. W. Ashford & Son interested in cotton mill proposed here. Also A. J. Baxter.

MASSACHUSETTS.

Boston, Melrose Highlands. Ingalls, H. S. Cotton sash cord.

MISSISSIPPI.

Meridian. Beatrice Cotton Mills. $400,000. M. Winer, president; W. G. Meyer, treasurer; Louis Cohen, vice-president and general manager. 30s yarns and fancy colored weaves. 20,000 spindles and 600 looms.

Shuqulak. Noxubee Cotton Mills. $50,000. W. J. Hubbard, president. New company proposed to make 8 to 12 cotton yarn, carpet warp and batting.

MISSOURI.

Kansas City. Kansas City Cotton Mills Co. Witten McDonald interested. 20,000 spindles proposed.

NEW YORK.

Franklinville. Textile plant proposed at this place. F. L. Stone interested.

NORTH CAROLINA.

Concord. Young-Hartsell Mills Co. $200,000. J. L. Hartsell, R. S. Young. To manufacture yarns.
Mt. Holly. Woodlawn Cotton Mills. $80,000. C. E. Hutchison, R. K. Davenport, interested. Yarns. 5,000 spindles.
Raeford. Raeford Power & Mfg. Co. $200,000. T. M. Upchurch, president; J. W. McLauchlin, treasurer. Expect to start erection of buildings in January.
Roanoke Rapids. Roanoke Rapids Power Co. organizing a spinning mill with capital of $500,000 in connection with our new power-development here. Contemplate building mill in spring.
Spray. American Yarn Co. $225,000. B. Frank Mebane, W. R. Walker interested. Cotton yarns.
Statesville. J. C. Steele & Sons. Interested in plant for manufacturing cotton rope. Capacity about 1,000 lbs. per day.

SOUTH CAROLINA.

Gaffney. Globe Cotton Mills Co. $100,000. W. M. Webster, president; W. C. Lipscombe, vice-president and secretary. Coarse ply yarns, 14 and 20. 4,000 spindles.

TEXAS.

Fort Worth. Board of Trade interested in cotton mill, proposed here, with capital stock of $150,000.

VIRGINIA.

Emporia. W. N. Brown interested in organing company with capital stock of $60,000 to manufacture heavy yarns, etc.

WOOLEN.

CONNECTICUT.

Norwich. John A. Moran, Phillip Henault and John Campbell interested in company to operate Preston Silk Mill. To have 6 sets cards, 35 looms.

MAINE.

Clinton. Frank L. Bussey interested in establishing 4 set plant.

MINNESOTA.

Delano. New building under construction. Propose removing Rockford (Minn.) mills here. C. E. Parker, secretary.

NEW JERSEY.

Little Falls. Little Falls Carpet & Rug Mills. $25,000. W. R. Hudson, Albin Smith, interested.

PENNSYLVANIA.

Philadelphia. Schaen, R. F. Sons & Co. Woolens and worsteds.

VIRGINIA.

Harrisonburg. Alma Mater Blanket Co. $10,000. W. H. Edwards, (New York,) president; R. Ballentine, (Charlotteville,) also interested. Woolen blankets, etc.

KNIT.

GEORGIA.

Arnoldsville. G. H. Smith, interested in starting hosiery mill, in addition to laundry plant.

CANADA.

Ontario, Dundas. Bickford & Mackay. New knitting mill, proposed.
Montreal. Gareau, C. A., (c/o Banque d' Hochelago,) 95 St. James St. Interested in starting small hosiery mill.

NORTH CAROLINA.

Lexington. Yadkin Knitting Mills. $10,000. J. D. Grimes, president; F. N. Patterson, treasurer; K. Alexander, superintendent. Men's and ladies' hosiery; 25 knitting and 2 sewing machines. Sell direct. (D & F) (Start building Jan., '06.)

PENNSYLVANIA.

Allegheny. C. S. Timblin, 107 Harrison Ave, interested in hosiery mill.
Bally. Stengel, Wallace. Hosiery.
Bareville. L. K. Leslie contemplates starting plant to manufacture hosiery.
Manheim. Witmyer, Chas. S. Proposes erecting a hosiery mill.
Milton. West Branch Knitting Co. $100,000. M. Lieberman, interested. To be organized for operating the idle mill.
Philadelphia. Goldstein, J., 7th and Master Sts. Knitting plant. Capacity 100 dozen per day.
Philadelphia. Weinstein, Joseph, 272 So. 3rd St. Contemplates starting hosiery plant under name of Peerless Hosiery Co.

SOUTH CAROLINA.

Aiken. B. Bates. Proposes installing 8 to 10 machines in his store to consume idle time of clerks.
Greenville. L. M. McBee. Interested in company proposing utilizing Camperdown Mill building.
Seneca. King, J. L. O. Knitting mill contemplated.

TENNESSEE.

Brownsville. Knitting mill proposed with about 50 machines, to dye and finish. Commercial Club interested.

SILK.

CONNECTICUT.

Middletown. Merchants Silk Co. C. D. Leach and L. Markham, interested.

MISCELLANEOUS.

NEW JERSEY.

Bridgeton. Martin Dyeing & Finishing Co. $150,000. W. L. Martin, (Philadelphia,) Jas. G. Shaw, (New Castle, Del.,) interested.

NORTH CAROLINA.

Bessemer City. J. A. Smith. Interested in establishing a dyeing and finishing plant here.

Important Changes.

COTTON.

ALABAMA.

Huntsville. Madison Mfg. Co.'s plant. Captain Milton Humes, purchased. Repairs to be made and put in operation.
Rock Mills. Wehadkee Yarn Mills, Inc. $25,000. L. T. Turner and L. Lanier, interested.
Spigner's Station. Alabama Cotton Mill. J. A. A. W. Clark, manager. (Formerly the State Cotton Mill.) Manufacture duck, sheeting and osnaburg.

DELAWARE.

Wilmington. Delaware Cotton Co. Resumed operations after long shut down, with Benj. O. Race, general manager.

GEORGIA.

Athens. Athens Mfg. Co. Reorganized, with capital of $125,000. T. P. Vincent, president. Built addition to mill and installed new machinery.
Eastman. Eastman Cotton Mills. Reorganized with capital $125,000. W. N. Leitch, president; W. H. Cotter, secretary and treasurer; S. C. Smyly, general manager. (Start operations Oct., '05.)
Racoon. Racoon Company. New company incorporated to operate mills idle for past 2 1/2 years. J. C. F. Clark, treasurer and superintendent.

LOUISIANA.

New Orleans. Lane-Maginnis Mills Corpn. $1,600,000. S. Odenheimer, president; Geo. A. Hero, treasurer. Combination Lane Mills and Maginnis Mills; total 84,000 spindles and 2,400 looms.

MASSACHUSETTS.

Adamsdale. Spencer Yarn Co. $50,000. A. Spencer, president; Geo. T. Greenhalgh, treasurer; R. E. Gooch, superintendent. (Operating the Adamsdale Mill.)
Fall River. Estes Mills. $250,000. John H. Estes, president; J. Edmund Estes, treasurer; Elmer B. Estes, superintendent. Incorporation of J. H. Estes

& Sons and Seaside Mills. Erected a new rope walk 550 feet long.

Lowell. Barber Mfg. Co. $5,000. Wm. Barber, president; Joseph Barber, treasurer. Cotton spinning tapes for worsted mills. Continue business. Wm. Barber.

Lowell. Boott Mills. Reorganized. Capital, $600,000. F. C. Dunbar, president; Frederick A. Flather, treasurer; A. C. Thomas, agt; Wellington, Sears & Co., s. agts.

Mansfield. Wadsworth Braiding Co. Removed plant from Providence, R. I. (Increased facilities.)

NEW YORK.

Cohoes. Peerless Fibre Company. $75,000. Louis Baere, president; Jacob Baere, treasurer. Change in management of the Perless Fibre Co.

NORTH CAROLINA.

Brookford. Brookford Mills, Inc. Formerly the E. L. Shuford Manufacturing Co. Added 3,000 new spindles and 150 looms.

Burlington. Hopedale Mills Co. $100,000. Jas. N. Williamson, Jr., president; Lynn Williamson, treasurer; C. E. Beale, superintendent. Yarns, 10s to 20s. (Formerly the Juanita Cotton Mills.)

Charlotte. Calvine Manufacturing Co. $300,000. Incorporated to take over plant of the Orient Manufacturing Co. E. A. Smith, interested.

Concord. Coddle Creek Cotton Mill. Yount & Thrum (Newton, N. C.) To operate plant formerly run by the Patterson Mfg. Co.

Gibsonville. The Gem Cotton Mills. Formerly the Hiawatha Cotton Mills; taken by the Aurora Mills of Burlington, and operated as above.

Graham. Leota Cotton Mills Co. $125,000. J. Harvey White, president; J. V. Pomeroy, treasurer. Yarns, 12s to 16s. (S.) (D.) Formerly the Voorhees Mfg. Co.'s plant. (136 looms not running Nov., '05.)

Greensboro. Pomona Cotton Mfg. Co. $250,000. Lee H. Battle, president and treasurer; A. L. Bain, superintendent. 10,000 spindles to be installed. (Taken over property of Etowah Cotton Mill.)

PENNSYLVANIA.

Philadelphia. Kershaw, John W. Co., Inc. Formerly John W. Kershaw.

Philadelphia. Mulholland, Harry, 1543 Ruan St., Frankford. Operating plant formerly run by O'Neill & Cooney.

Philadelphia. Ottoman Mill. Sold to Louis H. Foster.

Philadelphia. Schwehm's, John M. Sons. Succeed J. M. Schwehm & Sons.

RHODE ISLAND.

Central Falls. Flossette Mills Co. Incorporated with capital stock $100,000 preferred, $50,000 common stock, take over Flossette Mills. Capacity plant doubled.

SOUTH CAROLINA.

Camden. Pine Creek Manufacturing Co. $300,000. Col. T. C. Duncan, president; W. E. Touchstone, general superintendent. (Formerly the DeKalb Cotton Mills.) Increased from 12,000 to 19,000 spindles and 300 to 475 looms.

Camden. Hermitage Cotton Mills. Formerly Camden Cotton Mills.

Lolo. Valley Falls Mfg. Co. New Company organized. $75,000. W. P. Roof, president; Allen Jones, treasurer; R. Gossett, superintendent.

Walterboro. Walterboro Cotton Mills. $100,000; John F. Lucas, president; Walter Pringle, vice-president; Julian Mitchell, secretary. To operate the plant formerly run as the Colleton Cotton Mills.

TENNESSEE.

Nashville. Warioto Cotton Mills. $200,000. Incorporated to continue plant formerly known as the Tennessee Manufacturing Company. W. R. Odell, president; J. B. Morgan, secretary and treasurer.

TEXAS.

Belton. Belton Cotton Mill. $150,000. Succeeds the Belton Cotton Manufacturing Co.

Cuero. Buchel, Runge, Groves Co., Inc. D. A. Carter, superintendent. (Successors to Cuero Cotton Mill Co.)

Denison. Denison Cotton Mill Co. $150,000. W. B. Munson, president; W. R. Munson, treasurer; T. L. Clark, superintendent. New company has purchased and to operate the American Spinning Co.'s mill. Yarns; 8,000 spindles. Will add considerable new machinery.

WOOLEN.

CONNECTICUT.

Central Village. New company organized to operate the Plainfield Woolen Co.'s mill. Joseph E. Fletcher, president and treasurer; Charles Bragg, superintendent. Added 40 new looms.

East Willington. The Connecticut Woolen Mills Co. Being organized by Bernard Makover (B. Makover Co.,) New York, to operate the Daleville Mills.

Killingly. Interstate Co. $75,000. F. A. Jacobs, president; H. E. Back, treasurer; W. D. Chase, secretary. Shoddy extracts and waste. (Formerly old Bishop Mill.)

Stafford Springs. Archbald B. Paton. Purchased Central Woolen Mills. Probably increase loom capacity.

DELAWARE.

New Castle. Fort Casimir Mills. Sold to M. Gambrill.

INDIANA.

La Porte. La Parte Blanket Mills. Wallace & Smith Co., proprietors; W. H. Swift, superintendent. Operating King & Fildes Mill on high and low grade horse and bed blankets and robes.

KANSAS.

Oakland. Western Woolen Mfg. Co. Reorganization of Topeka Woolen Mill Co. To be made a 3 set mill.

MAINE.

Brooksville. Wm. Knox. Operating plant formerly run by J. G. Walker. Stocking yarns; also custom carding.

Limerick. Limerick Mills. $100,000. John F. Moore, president; Charles G. Moulton, treasurer; Robert Halford, superintendent. Worsted sale yarns. New company formed to operate the Holland Mills. (Old mill renovated.)

North Dexter. North Dexter Woolen Mill. Abbott & Latimer, proprietors. Purchased by A. P. Abbott & R. E. Lattimer. To manufacture same class of goods as Amos Abbott Co., but run independently.

MASSACHUSETTS.

Adams. Adams Woolen Company. $50,000. Wm. P. Martin, president; James C. Chalmers, treasurer; A. A. Graham, superintendent. (To operate the Graham & Clark Mill.) Installed additional machinery.

Monson. Somerset Woolen Co. $50,000. T. G. Lancey, president; Henry Sewall, treasurer; Henry W. Lancey, superintendent. Men's wear and dress goods. (Successors to T. G. Lancey & Co., Branch Woolen Mills.)

Pittsfield. Airedale Mills Company, Inc. $200,000. B. G. A. Rosentwist, president; Arthur Merritt, treasurer; Edward Wiessner, superintendent. (Formerly the Helliwell Company.) (Erecting new engine room and power plant.)

Uxbridge. American Woolen Co. Purchased Hecla Mill. Built new brick packing and shipping room, 50 by 50 feet, and added 12 new sets cards and 18 mules for manufacturing woolen yarns. E. M. Mansfield, superintendent.

Westford. Brookside Worsted Mills. $100,000. Clifford A. Moore, president; Geo. C. Moore, treasurer; Paul T. Wise, superintendent. (Incorporation to continue plant of Geo. C. Moore.) All counts yarns up to 40s.

MICHIGAN.

Sault Ste Marie. Soo Rug Mfg. & Carpet Co., Inc. $10,000. Formerly branch mill of the Petosky Rug Mfg. Carpet Co., Ltd.

Yale. Yale Woolen Mills. $100,000. James Livingston, president; Edward Andreae, treasurer; Frank W. Andreae, superintendent. (Succeed C. Andreae & Sons.) Addition built to mill and 11 new looms 2 sets cards and 124 spindles installed.

NEW JERSEY.

Somerville. Somerville Mfg. Co. $25,000. Incorporated to operate the Somerville Woolen Mills. James Brown, Jr., president and superintendent; H. L. Wissing, treasurer. Woolen and worsted men's wear. 8 sets, 50 looms. Sell direct. (D. & F.) (Operate Somerville Woolen Mills.)

NEW YORK.

East Salem. Ashworth, F. E. & Sons. Purchased Eagleville Woolen Mills. Repaired machinery.

Jamestown. Chadakoen Worsted Mill. Abraham Ashworth, proprietor. Worsted yarns. Continues plant formerly run by Ahlstrom-Ashworth Co.

Wegatchie. Curtis & Youland. Will take possession of Church's Woolen Mill Jan. 1st. Are erecting a new concrete dye house.

NORTH CAROLINA.

Greensboro. Marshall Mills. Purchased plant of the Van Deventer Carpet Co.

PENNSYLVANIA.

Chambersburg. Chambersburg Woolen Co. Incorporated. $100,000 capital. To operate plant of same name.

Chester. Marion Mills. Murphy & Bro., Philadelphia, proprietors; A. W. Etchells, superintendent. Cotton worsteds, fancy woolens, cottonades. (Formerly one of the Esrey Mills.)

Conshohocken. McFarland Woolen Mills. Thomas West, lessee.

Delmont. Delmont Woolen Mill. Purchased by S. D. & J. R. McQuaide. S. D. McQuaide, manager. Blankets, flannels and stocking yarn. New looms to be added and machinery for making men's woolen socks.

Doylestown. Clear Spring Worsted Mills. C. Holmes & Sons, proprietors. (Operate plant formerly run by the Doylestown Worsted Co.)

Listonburg. Cook-Emert & McMillan. Purchased the Listonburg Woolen Mill. Manufacture woolen yarns, blankets, flannels, skirts, in addition to the knitting mill at Somerset.

New Bethlehem. New Bethlehem Woolen Co. Andrew Kilgour, agent and superintendent. Blankets, flannels, yarns. W. T. Stearns, s. agt. (Operating the old woolen mill here.)

Philadelphia. Abbott Mfg. Co. New company organized, 2630 Mascher St. Operate old mill on worsted dress goods.

Philadelphia. American Woolen Co. Leased Albert Herbst & Co.'s mill, Emerald St. and Allegheny Ave. 4 combs; 3 worsted cards; 3,008 spindles.

Philadelphia. Canterbury Carpet Co. $20,000. Howard St. and Lehigh Ave. Clement Read, president and superintendent; Edward C. Read, Jr., treasurer; John L. Hooker, secretary. Ingrain carpets. 30 looms. (Formerly E. C. Moore & Bro.'s mill.)

Philadelphia. Germania Worsted Mills. Purchased equipment of the Ellison Mills (about 100 looms) and removed to their mill, Indiana Ave. and A Sts.

Philadelphia. Hamill Spinning Co. $100,000. Hugh J. Hamill, president; John Meighan, treasurer; John B. Hamill, secretary. (Succeed Hamill & Co.)

Philadelphia. Jameson & Kennedy, Church Lane and Lena St. Operate the weaving plant formerly run by Baker Mfg. Co. on worsted and cotton goods, men's and women's wear.

Philadelphia. Rockhill Mfg. Co., West Maynard. $20,000. Richard Hall, president; James D. Brooks, treasurer; Ross B. Linton, secretary. Increased plant from 3 to 8 sets. (Succeed Richard Hall.)

Philadelphia. Rockwell Mfg. Co. $200,000. Geo. Sidebotham, president and superintendent; Paul Uhlig, treasurer. (Formerly known as Abbott Mfg. Co.)

RHODE ISLAND.

Hope Valley. Youngman & Hammond. $30,000. G. M. Youngman, superintendent. Overcoatings, cloakings, skirtings and fancy cassimeres. 2 sets; 32 looms. (Formerly the Locustville Mill.) (D.) S. & W.) (8/05.)

Washington. Esten, A. H. Woolen and merino yarns. (Operating No. 2 mill of Spring Lake Mill.)

Washington. Thayer & McMahon. Robert McMahon, Jr., superintendent. Woolen and merino yarns. 8 sets cards. (Part of the Spring Lake Woolen Mill.)

VERMONT.

Johnson. Pearl & Barrows. (Formerly I. L. Pearl & Co.) Annex, 30 by 60 feet, built to mill and capacity doubled.

VIRGINIA.

Clifton Forge. Carpenter Woolen Mills Company. $20,000. J. C. Carpenter, president; W. K. Ford, vice-president; A. G. Hill, Jr., secretary and treasurer. (New company organized to take over the old Clifton Woolen Mills.)

WISCONSIN.

Janesville. Rock River Woolen Mills. Under new management. Curtiss & Warren, s. agts.

KNIT.

ALABAMA.

Athens. Athens Knitting Mills. H. Smith, proprietor. Mixed colored hosiery. 25 machines. (Formerly Limestone Hosiery Mills.)

CONNECTICUT.

Putnam. Royal Knitting Mill Co. H. Feingold, president; D. Feingold, vice-president; Wm. S. Johnson, treasurer. To operate plant formerly run as Putnam Knitting Mill.

GEORGIA.

Macon. Southland Knitting Mills. $30,000. E. Lee Campe, (N. Y.,) president; J. W. Hanson, agent and superintendent. Ladies' cotton underwear. Hecht & Campe, New York, s. agts. (D.) (S.) (Formerly the Schofield Mfg. Co.'s plant.)

ILLINOIS.

Chicago. Colonial Knitting Mills. $50,000. (Succeed Straus-Cahn Knitting Co.) E. B. Cahn, president and treasurer; J. H. Wilson, superintendent.

KENTUCKY.

Paducah. Dixie Mills Company. $100,000. R. B. Phillips, president; T. L. Upton, treasurer and general manager. (Purchased plant of the Alden Knitting Mills Co.) Production increased to 1,000 dozen per day. New addition built, 50 by 60 feet, two stories, and new 125 h.-p. engine installed.

MASSACHUSETTS.

Lowell. Middlesex Knitting Mills. Succeeds Waukenhose Knitting Co.

MICHIGAN.

Bay City. Worlds Star Knitting Co. $200,000. (Formerly Bay City Knitting Co.) H. B. Smith, president; M. C. Smith, vice-president; D. L. Galbraith, treasurer and general manager; C. A. Galbraith, superintendent. Addition built, 50 by 180 feet, 3 stories and basement; also power house, 48 by 40 feet.

Clare. Clare Knitting Mills. W. Wolsey, president; D. A. Wolsey, secretary. (Formerly W. Wolsey's mill.)

NEW YORK.

Brooklyn. Progressive Knitting Works. (Formerly Co-operative Knitting Works.) Rubenstein Bros., proprietors.

Greenwich. Jesse V. Palmer Co. Organized, capital $50,000. To operate Van Zile Knitting Co. Additional machinery installed.

New York. Metropolitan Knitting Mills. $10,000. Consolidation Manhattan Knitting Works, Manhattan Knitting Mills and Prudential Knitting Mills. Sweaters, hosiery and sporting hosiery.

Troy. Barnet Textile Co. Succeeds Commercial Knitting Mills Co. Gates Barnet, president; Jonas M. Barnet, treasurer; G. Garfield Barnet, secretary.

Utica. Spitzli Hosiery Co. Mr. Spitzli, proprietor. Purchased Argo Knitting Co.'s plant.

Whallonsburgh. Empire State Mills., Inc. $10,000. W. H. Spanswick, president and superintendent; A. D. Smith, treasurer. Ladies' jersey ribbed underwear. 12 knitting machines and 20 sewing machines. (Formerly at Crown Point.)

NORTH CAROLINA.

Washington. Thelma Knitting Mill. Misses' ribbed hose. W. L. Horah, superintendent. (Formerly the Washington Knitting Mills.)

Winston-Salem. Maline Mills. New building, 161 by 75 feet, two stories erected. Wachovia Knitting Co. and Maline Mills consolidated as the Maline Mills. Capital, $100,000. Installed 15 new knitting machines, giving total of 42 knitting and 60 sewing machines.

OHIO.

Cincinnati. Adler Underwear & Hosiery Mfg. Co. $255,000. Incorporated to take over business Adler & Co.

PENNSYLVANIA.

Lykens. Lykens Knitting & Mfg. Co. $20,000. W. Walter Duncan, president and superintendent; R. Coble, treasurer. Ladies' 176 needle hosiery. (Succeds Walter Duncan & Co.)

Macungie. Macungie Knitting Mills. John Rems & Sons. Ladies 'and children's cotton underwear. Operating underwear plant formerly run by R. F. Moyer & Co. 13 knitting and 15 sewing machines.

Philadelphia. Boardman Knitting Mills. $50,000. Joseph L. Behal, president; Edwin Boardman, secretary; Herbert Boardman, superintendent. (Took over Standard Knitting Mills.)
Philadelphia. Goldblatt & Busch Knitting & Fur Co., Dock and Walnut Sts. (Formerly U. S. Knitting Co. at 426-28 Market St.)
Philadelphia. Hall Hosiery Co., Front St. and Lehigh Ave. $50,000. James Hall, president; Joseph F. Gee, superintendent. Ladies', Misses' and Men's seamless hosiery, lace and plain. 250 knitting machines. (Took over plant of Brown & Hunt Co.)
Philadelphia. Lena Hosiery Mill, 5127 Lena St. Geo. H. Gilbert, manager. Took over mill operated by Mrs. E. M. Lane and added new machinery.
Philadelphia. Liberty Bell Hosiery Mills, 4318 Frankford Ave. $25,000. D. C. Dalsimer, president; E. C. Locke, treasurer. Ladies' hosiery and infants' hose. (Operate plant formerly run by Locke & Aucott.)
Philadelphia. Liveright & Davidson. Removed plant to larger quarters, Palethorp and Oxford Sts. Formerly Gans & Liveright.
Philadelphia. Unique Textile Mills, Inc., 10th and Diamond Sts. (Succeed Unique Knitting Co. Simon Friedberger, president; E. M. Goldsmith, treasurer; Frank Clewly, superintendent.
Pottstown. Pottstown Hosiery Mills, Inc. Succeed to business Fritz & Krause.
Pottsville. Kaiser, John H. Operates plant formerly run by James Aikman, Jr. Equipped with 12 machines.
Reading. Penn Underwear Mills. Formerly known as Mt. Penn Knitting Co.
Reading. Rick Knitting Co., Front and Green St. $50,000. James Rick, Sr., president; James Rick, Jr., vice-president; R. G. Scarlett, treasurer; D. Ruth, superintendent. Operate 100 knitting and 20 sewing machines. Bateson & Dowd, N. Y., s. agts. (Formerly Gem Knitting Mills plant.)
Richland. Haak, A. C. Successor to the Richland Knitting Mill. Makes hosiery. 28 knitting and 3 sewing machines.
Schuylkill Haven. Eureka Knitting Co., Ltd. $19,000. C. F. Schumacher, president; P. C. Detweiler, treasurer; Chas. Keller, secretary, and Robt. J. Hoffman, superintendent. (Formerly the Eureka Mill.)

RHODE ISLAND.

Woonsocket. Rathbun Knitting Co. (Formerly known as the Morrill Knitting Co.) E. H. Rathbun, president; Mark Hough, secretary; Geo. H. Emmott, treasurer and general manager.

VIRGINIA.

Norfolk. Northside Knitting Co. $25,000. Ralph Riddleberger, president; F. H. Brayton, treasurer; A. W. Chapin, superintendent. Ladies' ribbed vests and pants, heavy weight. Critten, Clift & Co., s. agts. (E.) 22 sewing machines. (Purchased plant of the Nyack (N. Y.) Knitting Co.
Petersburg. Petersburg Hosiery Co., Inc. $5,000. A. S. Reinach, president; F. L. Reinach, treasurer. New company formed to take over the plant formerly run by A. S. Reinach & Son.

WISCONSIN.

La Crosse. Onalaska Woolen Mfg. Co. Discontinued making yarns and manufacture men's woolen hosiery, mittens and flannel shirts.

SILK.

MASSACHUSETTS.

Becket. Berkshire & Becket Silk Co. New mill erected and plant formerly operated by S. K. Smith, as Becket Silk Co., incorporated.

NEW JERSEY.

Passaic. Alexander Silk Mills. Propose changing name to Greenwood Mills. Discontinued vestings. Will run exclusively on mohair serges.

NEW YORK.

Staten Island. Richmond Valley. J. W. O'Meara, proprietor of the O. H. Barnard Silk Mill.

PENNSYLVANIA.

Catasauqua. Corty Velvet Mfg. Co. $50,000. E. Corty, (Crefeld,) president; M. Buchholz, treasurer; Wm. H. Elliott, assistant treasurer. Silk velvets. F. Hoeninghaus, New York, s. agt. (Purchased the Unicorn Silk Mill property.)
Lansdowne. Genasco Silk Co. Montgomery Waddell, manager. Purchased plant formerly operated by General Artificial Silk Co. Will continue manufacture of artificial silk.
Lebanon. Reinhart, M. P. Co. Operate the Miller & Ward Silk Co.'s plant. Property transferred.
Scranton. Ashley Silk Co. A. F. Kizer, president; Charles F. Miller, treasurer; W. Kilgour, superintendent. New company operating the Ashley Silk Throwing Mill.

MISCELLANEOUS.

MASSACHUSETTS.

Franklin. Franklin Mills. Reorganization of Worcester Textile Co. Wm. J. Eddy, president; D. B. Starr, treasurer; Benj. Laycock, superintendent.

PENNSYLVANIA.

Philadelphia. Fairhill Bleachery. Successors to Hulme, Clements & Co. Remodelled plant. Installed new 60 h.-p. boiler, extractor and acid vats.
Philadelphia. Philadelphia Mercerizing Co., Ontario and A Sts. James Hulton, president; H. P. Page, secretary and treasurer; N. Briggs, superintendent. (Formerly Pennypack Yarn Finishing Co.)

Enlargements and Improvements.

This list is not, by any means, a complete record of Enlargements and Improvements, but there is hardly a mill in the country but what has made some changes and improvements. The object is as far as possible to enumerate the more important and such as would have a bearing on the growth of the industry.

COTTON.

ALABAMA.

Anniston. Adelaide Cotton Mills. To double capacity of plant and instal 5,000 spindles in near future.
Anniston. Woodstock Cotton Mills. New addition erected, 300 by 50 feet; equipped with 175 looms. Make Turkish towels and damask table cloths.
Athens. Athens Cotton Mills Co. Building an addition, 60 by 90 feet; to install 2,500 spindles; expect to complete early in new year.
Pell City. Pell City Mfg. Co. Installed additional looms, giving plant total of 772.
Talladega. Chinnabee Cotton Mills. Increased capacity; added 8 Howard & Bullough spinning frames, 304 spindles each.
Uniontown Ellawhite Cotton Mill. Installed additional spindles, increasing to 10,000.

CONNECTICUT.

Moosup. Aldrich Mfg. Co. Erecting new weave shed to install from 400 to 500 looms.
Wauregan. Wauregan Co. Installed 40 new cards and 20 speeders in No. 2 mill.

GEORGIA.

Banning. Hutchison Mfg. Co. Started manufacturing Infants' and Misses' cotton hose. Added dye house to plant.
Cartersville. American Textile Co. Added 4,000 spindles and 100 looms. A new dye plant has also been installed. Propose building second addition to mill during the year and equipping with machinery.
Columbus. Eagle and Phenix Mills. Installed 423 (Crompton & Knowles) looms.
Columbus. Swift Mfg. Co. New addition being built. Will add 5,000 spindles and 100 looms.

Dublin. Dublin Cotton Mills. Building addition to plant. Expect to have completed in January, with 3,120 new spindles.
Fitzgerald. Fitzgerald Cotton Mills. Built addition to mill and double spinning capacity; total now of 10,000 spindles.
Hampton. Hampton Cotton Mills. Installed 3,116 additional spindles.
Moultrie. Moultrie Cotton Mill. Doubled capacity, increasing to 10,000 spindles.
Palmetto. Palmetto Cotton Mills. Addition built to weave shed, 75 by 125 feet, and 100 new looms installed.
Rome. Anchor Duck Mills. Enlarging mill building. Will add 7,000 spindles, making total of 14,000, and 75 more looms.
Sargent. Wahoo Mfg. Co. Replaced old with new spinning machinery; also installed new engine and water wheel.
Whitehall. Whitehall Yarn Mill. New building erected and 2,500 spindles added, doubling capacity.

MASSACHUSETTS.

Adams. Plunkett, W. C. & Sons. New dye house and engine room built.
Adams. Renfrew Mfg. Co. Erected new dye house and other additions; also installed 98 more looms, 4 quillers and 2 hot presses in plant.
Chicopee. Dwight Mfg. Co. Partially equipped plant with electricity for power and lighting, in connection with steam and water power.
East Webster. Slater Cambric Works. New addition built, 330 by 35 feet, 2 stories. New machinery added.
Fall River. Bourne Mills. 15,000 spindles installed, replacing discarded mules.
Fall River. Globe Yarn Mills. Addition, 222 by 74 feet, one story, between Nos. 1 and 2 mills; spinning and finishing machinery installed.
Fall River. Hanscom Bros. Erected new building, 100 by 56 feet, 2 stories, and installed dye plant; also about 400 braiders.
Fall River. Wampanoag Mills. Replaced mules with spinning frames and removed carding and drawing machinery.
Fisherville. Fisherville Mfg. Co. Erecting weave shed, 135 by 86 feet. To instal 400 new looms; also several which are now running in the mule room. New slashers will also be put in.
Fitchburg. Grant Yarn Co. Addition, 105 by 50 feet, 2 stories, underway; will add 1,000 ring spindles.
Fitchburg. Parkhill Mfg. Co. Addition built to Mill C., two stories, and 120 new looms installed.
Hebronville. Hebron Mills. Four-story addition, 50 by 60 feet. Spinning frames and cone winding machinery removed to new addition.
Lancaster. Lancaster Mills. Installed 360 new (Draper) looms ,replacing old ones.
Lawrence. Arlington Mills. Atherton branch; 130 looms.
Lawrence. Lawrence Duck Co. Addition erected and equipped with 225 h.-p. gas engine as an auxiliary to water wheels.
Lawrence. Pacific Mill Corp. Replaced old looms with 800 new Draper ones.
New Bedford. Butler Mill. Installed new engine and increased spindles to 76,000.
New Bedford. City Mfg. Co. Erecting new cotton shed, 140 by 100 feet, two stories, brick.
New Bedford. Dartmouth Mfg. Corpn. Erected 2-story weave shed and added looms.
No. Abington. Victory Webbing Co. Addition 115 feet long, 2 stories and basement, under construction; will add 52 new looms; make new line silk goods.

MISSISSIPPI.

Magnolia. Magnolia Cotton Mills. Increased capacity of plant, making total of 10,000 spindles and 264 looms.

NEW HAMPSHIRE.

Manchester. Manchester Mills. Addition to steam plant; large wheel installed in No. 1, replacing 2 old ones; also built new dye house.
Nashua. Nashua Mfg. Co. New dye house erected; also cloth room extension, 115 by 84 feet.
Somersworth. Great Falls Mfg. Co. Addition to mill No. 2. New carding machinery installed.

NEW JERSEY.

Passaic. Brighton Mills. To build an addition, 68 by 78 feet, 2 stories, for storage purposes.

NEW YORK.

Lockport. Niagara Textile Co. Addition built to plant; increased looms from 50 to 110.
Staten Island, New Brighton. The Irving Mfg. Co. Rebuilding plant destroyed by fire with additions. Will instal 12 new 80-in. looms.
Utica. Utica Steam & Mohawk Valley Cotton Mills. New mill under construction, to be completed about January, 1906. Will instal from 20,000 to 25,000 ring spindles and 200 to 300 looms.

NORTH CAROLINA.

Albemarle. Wiscasset Mills. Installed 2 upright boilers, 250 h.-p. each; also 6,000 spindles in mill No. 2.
Asheville. Asheville Cotton Mills. Picker house enlarged, 16 by 62 feet; new picker machinery and 1664 spindles installed.
Burlington. Elmira Cotton Mills. Installed about 400 new looms.
Burlington. Glencoe Cotton Mills. Installed 100 new looms.
Charlotte. Magnolia Mills. Built addition, 160 by 28 feet, added 2,048 new spindles, making total of 6,144.
Clayton. Clayton Cotton Mills. Addition, 48 by 125 feet, built to mill and a new building, 75 by 144 feet, erected. Installed 5,120 new spindles.
Cumberland. Cumberland Cotton Mills. Increased capacity of mill and enlarged building.
Fayetteville. Tolar-Hart-Holt Mills. Installed 1,100 additional spindles.
Gastonia. Loray Mills. Installed additional machinery in plant, 32,000 spindles and 840 looms, giving plant total of about 57,000 spindles and 1,660 looms.
Gastonia. Modena Mills. New building erected, 150 by 75 feet, 2 stories, as Mill No. 3. About 8,000 new spindles will be installed.
Goldsboro. Borden Manufacturing Co. Installing 1,200 additional spinning spindles in present building.
Graham. Carolina Cotton Mills. Built addition, 124 by 50 feet. Added 71 duck looms.
Greensboro. Revolution Cotton Mills. $300,000. Installed 15,000 new spindles and 400 looms. Erected a new addition.
King's Mountain. Lulu Cotton Mills. Installed 3,000 additional spindles.
Lexington. Nokomis Cotton Mills. Installed 1,920 new spindles and 36 looms, giving total of 14,400 spindles and 356 looms in mill.
Lowell. Lowell Cotton Mills. Installed 2,000 more spindles and preparatory machinery.
Lumberton. Lumberton Cotton Mills. No. 2 Mill under construction, will add 6,240 spindles, giving total of 18,240, early in 1903.
Monroe. Monroe Cotton Mills. Building an addition, 80 by 250 feet, one story. Will install looms for weaving yarns into sheetings.
New London. Tucker & Carter Rope Co. Erected new boiler house and installed new boilers, also increased machinery and power about one-third.
Spray. Rhode Island Co. Addition built to mill and more looms installed.

PENNSYLVANIA.

Chester. Jordan Manufacturing Co. Built addition to the mill and installed 300 additional looms.
Norristown. Wyoming Spinning Co. Added 5,000 more spindles.
Philadelphia. Aberfoyle Mfg. Co. (Chester, Pa.). Purchased C. W. Rice Mills and operate on cotton and silk mixed fancy dress goods. Equipped with 200 looms.
Philadelphia. Bromley Mfg. Co., Lehigh Ave. New building erected, 76 by 144 feet; also boiler house and power plant, 51 by 107 feet.
Philadelphia. Delta Spinning Co., Frankford. Installed new coning machines, two winders and increased power plant; 5-160 h. p. boilers.
Philadelphia. Krout & Fite Mfg. Co. New buildings erected, Wayne and Roberts avenues, Wayne Junction, including 5 story main building, office building and engine and boiler houses.
Philadelphia. Weimar Bros., Amber street. Addition 111 by 52 feet, 2 stories, built to mill.
Scranton. Scranton Lace Co. Large addition to mill.

RHODE ISLAND.

Coventry. Quidnick Mfg. Co. Installed large number flat cards, speeders and spinning frames.
Pawtucket. Jenckes Spinning Co. Built four story brick storehouse.

Pawtucket. Lorraine Mfg. Co. Built an addition, 100 by 90 feet, 4 stories, to main mill; a new weave shed, 110 by 90 feet, one story, brick, and a new office building and warehouse, 100 by 80 feet, for storage. About 400 looms will be installed and additional spindles.
Valley Falls. Frank Wood Mfg. Co. New mill built and equipped with 64 broad and 2 narrow looms; 24 being new.
Woonsocket. Brindle Bros. Purchased Macrodi Fibre Co.'s plant, adding additional machinery. Later will erect one story weave shed, 96 by 50 feet.
Woonsocket. New England Edging Co. Lace edgings for underwear. Rebuilt plant destroyed by fire. 6 looms.

SOUTH CAROLINA.

Batesburg. Middleburg Cotton Mills. Installed 4,000 additional spindles; also new dye plant.
Charleston. Royal Bag & Yarn Mfg. Co. New building erected and 3,000 new spindles added.
Dillon. Maple Cotton Mills. Addition built to mill and 8,500 new spindles installed.
Easley. Easley Cotton Mills. An addition 71 by 128 feet and one 30 by 50 feet built to mill. Installed 6,000 more spindles and 200 looms, giving total of 38,032 spindles and 1,000 Draper looms.
Fountain Inn. Fountain Inn Mfg. Co. Increased capital stock to $100,000 and added 4,500 spindles, making total of 10,000 spindles and 60 looms.
Goldville. Banna Cotton Mills. Leased by Messrs. Graham for period 16 months. Have total of 8,000 spindles; 2,500 additional ones put in.
Greenville. American Spinning Co. Installed 7,000 additional spindles in the plant.
Greenville. Mills Mfg. Co. 76 (Draper) looms and 4,200 spindles added.
Hartsville. Hartsville Cotton Mills. Added 5,000 more spindles and 100 looms.
Lockhart. Lockhart Mills. Increased capital to $1,300,000. New mill erected and will be equipped with 50,000 spindles and 1,500 looms.
Marion. Marion Cotton Mills. Installed 2,048 more spindles in mill.
Pacolet. Pacolet Manufacturing Co. Erecting another mill with equipment of 25,000 spindles and 750 looms.
Rock Hill. Highland Park Mfg. Co. Dyeing department increased and plant equipped and operated by electricity.
Spartanburg. Beaumont Mfg. Co. New mill to be known at Mill No. 3, under construction; will be completed about March, '06. Total of machinery will then be 15,680 spindles and 252 looms.
Union. Aetna Cotton Mills. Addition built, 100 by 200, and machinery increased from 10,752 spindles and 350 looms, to 30,000 spindles and 750 looms.
Woodruff. Woodruff Cotton Mills. Added more spindles, giving total of 37,000 in the plant.

TENNESSEE.

Chattanooga. Bowen-Jewell Co. (Jewell, Ga.). Established plant here for making all kinds cotton bags.
Knoxville. Brookside Mills. Installed additional machinery and built new brick warehouse.

TEXAS.

Bonham. Bonham Cotton Mills. Erected addition, 100 by 60 feet, to carding and spinning machinery; added 5,000 spindles and necessary carding and opening machinery.

VIRGINIA.

Danville. Dan River Power & Mfg. Co. Started work on additional buildings for doubling capacity of plant.

WOOLEN.

CANADA.

Ontario. Bolton. Walshaw, J. & Son. Rebuilt mill destroyed by fire. Equipment 3 sets cards; 15 looms.

CONNECTICUT.

Baltic. Shetucket Worsted Mills. Addition built, 75 by 110 feet, and 15 new looms added.
Bridgeport. Read Carpet Co. New building under construction, 112 by 57 feet, four stories, for increasing facilities. Also erected new dye house and storehouse.
Bridgeport. Salt's Textile Co. Addition, 60 by 70 feet, built for weave room and storage.
Clark's Falls. Wild, Joseph & Co. Purchased Clark's Falls Felting Co.'s mill. Operate same as branch.
Mechanicsville. French River Textile Co. Installing 25 (Crompton-Thayer looms). To add 25 more.
Moosup. Moosup Mills. Installed 85 new looms, replacing old ones, also 3 new sets cards and 6 mules.
Putnam. Bay State Worsted Co., Worcester, Mass., leased Putnam Woolen Co.'s No. 2 mill, 32 looms, and operate same in connection with their other plant.
Rockville. American Mills. Built new 2 story picker house, 40 by 70 feet.
Rockville. Hockanum Co. Built an addition, 180 by 60 feet, 4 stories.
Rockville. Regan, J. J., Mfg. Co. Erecting new 4-story mill, 101 by 72 feet.
Rockville Mfg. Co. Erected new boiler house, 66 by 45 feet.

GEORGIA.

Rossville. Park Woolen Mills. About $30,000 expended in new building and installation of new machinery, to make warps, 2 plys and single.

ILLINOIS.

Lacon. Grieves, John & Sons. Addition built to mill and installed 6 new looms and 2 new sets cards, increasing to 4 set mill.

MAINE.

Camden. Knox Woolen Co. New dye house, 82 by 42 feet, 2 stories; also boiler house, 42 by 18 feet, one story.
Dexter. Amos Abbott Company. New building, 110 by 61 feet, brick, for dye house and picker room.
Foxcroft. Mayo & Son, Inc. Addition built, 50 by 40 feet, two stories, built to weave room, and 14 new looms installed.
Lewiston. Columbia Mills. Erected a new boiler house and chimney and put in two horizontal boilers, 66 inches by 18 feet. Also built an addition to finishing room.
Lisbon Centre. Farnsworth Co. New building, 162 by 62 feet, 4 stories, under construction, for weaving and spinning; also new dye house and picker house. Three new sets cards and other machinery will be added.
Madison. Indian Spring Woolen Co. Addition made to mill and one set cards and additional mules put in.
Madison. Madison Mills. Installed 4 new spinning mules; to add 10 new looms.
Sanford. Goodall Worsted Co. Installed 54 new looms and new boilers.
Sanford. Maine Alpaca Co. Added to old plant and secured American A. & P. Co.'s plant, for installation of 123 looms for linings.
North Vassalboro. American Woolen Co. Installed 10 sets cards in the mill.
North Vassalboro. Chase, Edward. Rebuilding shoddy mill destroyed by fire.
North Vassalboro. Peace, Herbert. Rebuilt shoddy plant destroyed by fire as far as picker room. Carding machinery and looms to be installed next spring.

MASSACHUSETTS.

Boston. Roxbury Carpet Co. New 4 story building erected, 86 by 60 feet.
Caryville. Taft Woolen Co. Installed new 350 h. p. boiler, also 2 new sets cards.
Charlton City. Aldrich Mfg. Co. Rebuilt plant destroyed by fire. Piece dyes, men's goods; 2 sets cards; 36 looms.
Cherry Valley. Chapel Mills Mfg. Co. Addition, 120 by 60 feet, 3 stories, to Bottomly Mill; also new power house and 2 new 125 h. p. boilers installed. New machinery, including cards, packs and 24 looms added.
Collinsville. American Woolen Company. Rebuilding mill destroyed by fire.
Franklin. Franklin Yarn Co. Three story addition built, 54 by 45 feet; new carding and spinning machinery installed.
Globe Village. Hamilton Woolen Co. Installed 40 new dobby looms. Also added new yarn dyeing department.
Holden. Dawson Mfg. Co. New dye house built, 50 by 50 feet, one story, replacing old one.
Holyoke. Beebe-Webber Co. Installed 20 new looms in space formerly occupied by the National Felting Co.
Holyoke. Farr Alpaca Co. New weave shed under construction. Also new power house for furnishing and distributing its own electricity.

Indian Orchard. Rhode Island Worsted Co. Installed additional looms, giving plant total of 100.
Lawrence. Washington Mills. New dye house, 100 by 500 feet, one story.
Lowell. Bigelow Carpet Co. Demolished one of the old spinning mills and erected new building, 225 by 123 feet, 7 stories.
Medway. Medway Woolen Co. New power house; new boilers and engine put in; also additional machinery instaled in weave room.
Millbury. Bowden Felting Mills. Extension built, 58 by 20 feet, brick; also addition to main building for electric light plant.
North Andover. Brightwood Mfg. Co. New addition, 184 by 58 feet, one story, built. Installed 36 new English looms and removed 54 from old building to new addition.
Plymouth. Standish Worsted Mills. Addition built to weave shed and about 40 new looms put in.
South Royalston. Whitney Woolen Co. Raised plant. Installed two new water wheels and some carding machinery.
Uxbridge. Root, C. A. & Co. Enlarged mill building. Increased looms to 72.
Watertown. Aetna Mills. Built an addition, 112 by 27 feet, one story to dye house; 25 by 75 feet, two stories to finishing mill, and 53 by 100 feet, three stories to weave shed. Added 60 new looms.

NEW HAMPSHIRE.

Guild. Fairbanks & Dorr. Erected new building, 84 by 550 feet, and installed additional set cards, 10 looms and a mule.
Newport. Dexter, Richard & Sons Co. New mill erected and equipped.

NEW JERSEY.

Camden. Camden Wool Stock Co. Added four double sets cards and three new pickers.
Passaic. Algonquin Co. Established shoddy plant, 6 sets, in building formerly occupied by Dundee Woolen Co.
Passaic. Botany Worsted Mills. New spinning mill erected and machinery being installed.

NEW YORK.

Albany. Barnet, W. & Son. New shoddy mill built and capacity of old plant doubled.
Amsterdam. McCleary, Wallin & Crouse. Erecting new mill, 303 by 80 feet, 5 stories, brick. To be equipped for making tapestry Brussels.
Amsterdam. Shuttleworth Bros. Purchased Amsterdam Woolen Co.'s plant. Installing machinery for making rugs and carpets.
Amsterdam. Sanford, S. & Sons. Erected an 8 story drying tower, 30 by 27 feet, brick.
Marcellus. Crown Mills. Installed 80 new looms and one set cards.
Utica. Globe Mills. Installed 2 new dressing frames and six English worsted cards.
Waterloo. Waterloo Woolen Mills. New 5 story building erected, 180 by 82 feet, with picker house, 58 by 36 feet; boiler house, 57 by 70 feet, and engine house, 40 by 45 feet.

OHIO.

Cleveland. Cleveland Worsted Mills. Installed additional looms, giving total in the plant of 400.

PENNSYLVANIA.

Bristol. Grundy, W. H. & Co. Installed additional Worsted Machinery, also new 500 h. p. engine.
Brookville. Brookville Woolen Mill. To enlarge buildings and increase capacity of plant.
Clifton Heights. Thomas Kent Mfg. Co. Erecting new building.
Crum Lynne. Kennebec Worsted Co., Ltd. Leased Crum Lynne Worsted Mills. Operate plant as branch of their Philadelphia mill.
Darby. Grayson, George. Installed about 1,000 spindles for spinning worsted yarns.
Landenberg. Landenberg Worsted Mills, Ezra Lund, proprietor. New Building erected for scouring purposes; also an addition, 75 by 35 feet, 3 stories, stone. Installed 1,200 more spinning spindles, twisting and other machinery, and 300 h. p. tandem engine.
Lenni Mills. Yorkshire Worsted Mills. A new weave shed erected and 105 additional looms put in, giving plant total of 305.
Philadelphia. Arkonia Fabric Mfg. Co. (West Millbury, Mass.) (Branch mill started here.) Dress serges and pine dyes. J. C. Sullivan and S. Hodgson, managers. 22 looms.
Philadelphia. Dunlap, Jas. Carpet Co. Additional story built to mill.
Philadelphia. Fern Rock Woolen Mills. Branch plant started, Palethorp and Oxford streets. Dress goods; 50 narrow and 16 broad looms.
Philadelphia. Gay's, John, Sons, Inc. Purchased new building at Trenton avenue and Ann streets, and installed machinery for making 3/4 tapestry carpets, velvet carpet and rugs.
Philadelphia. Gebauer, Julius A. Unity and Leiper streets. Added 27 new looms.
Philadelphia. Hall Yarn & Waste Mfg. Co., Manayunk. Rebuilt plant destroyed by fire. Equipped with 1 picker; 8 garnetts; 2 dusters, 1 press.
Philadelphia. Pequea Mil's. Installed 20 new looms.
Philadelphia. Roosevelt Worsted Mills, 2023 Naudain street. Acquired entire building, 5 stories and removed offices to smaller building adjoining.
Philadelphia. Shackamaxon Worsted Co. Built various large additions to mills, including new boiler and waste houses, and installed additional machinery.

RHODE ISLAND.

Bristol. Namquit Mills. Installed looms.
Centreville. Kent Mfg. Co. Installed new picker, also 12 new looms.
Greenville. Greenville Woolen Co. Added 25 new looms. Also new office building erected.
Harrisville. Glen Worsted Mills. Installed complete set finishing machinery.
Nasonville. Nasonville Woolen Co. Addition, 2 stories, brick, completed, and 16 looms installed from main building. Dyeing department also increased.
Olneyville. Centredale Worsted Mills Combing Plant. Combing. All the combing and carding of the Centredale Worsted Mills removed here.
Providence. Atlantic Mills. Addition built to No. 1 Mill, for extra space. Large dye house, about 225 feet each way, under construction.
Providence. Paramount Worsted Mills. Increased weaving capacity. Installed Crompton-Thayer looms.
Providence. Queensbury Mills. (Worcester, Mass.) Yarns, up to and including 2/36s. Leased the Rhode Island Worsted Mills and operate for purpose of increasing capacity.
Providence. Wanskuck Co. Started work on new mill, 307 by 75 feet, 3 stories, on Branch avenue.
Wickford. Wickford Worsted Mill. Leased by Joseph E. Fletcher and operated on worsted goods.
Woonsocket. Scotia Worsted Mills. Building an addition, 110 by 40 feet, 2 stories. Additional machinery to be installed.

TENNESSEE.

Cleveland. Cleveland Woolen Mills. Rebuilt plant damaged by fire and making addition larger with view to increasing capacity.
Cumberland Gap. Kesterson & Wright. Operate Cumberland Gap Woolen Mills. Installed 6 knitting machines, for making cotton and woolen hosiery.
Jackson. Jackson Woolen Mills. Rebuilt plant destroyed by fire and equipped with 10 0sewing machines for making pants, overalls, shirts, etc.
Knoxville. Knoxville Woolen Mills. New 2 story brick building, 100 by 60 feet, built for dye rooms and designing.

VERMONT.

North Hartland. Ottaquechee Woolen Co. Installed 10 new looms.
Saxton's River. Saxton's River Woolen Mill. Built an additional story for dry room and storage; also added 9 looms.
Springfield. Slack, W. H. H. & Bro. Power plant enlarged; new boiler installed and a 400 h. p. engine.
Winooski. American Woolen Co. Two story carbonizing plant, 243 by 64 feet; also addition, 200 by 99 feet, 3 stories, to No. 3 Mill.

VIRGINIA.

Virginia Woolen Co. Addition built and 2 sets cards and 16 looms added.

WASHINGTON.

Kirkland. Seattle Woolen Mill Co. Installed four new looms. New picker house also built.

KNIT.

ALABAMA.

Gadsden. Adams Knitting Mills. New bleaching plant installed.

Huntsville. W. H. Rowe Knitting Co. Addition built and more machinery put in.
Talladega. Talladega Hosiery Mills. Installed 15 Acme knitters. To increase still further.

CONNECTICUT.

Addison. Glastonbury Knitting Company. Erected four story addition to Mill No. 1.
Hartford. Reliable Mfg. Co. Plant removed here from New Bedford, Mass.

GEORGIA.

Barnesville. Gem Knitting Mills. Purchased the machinery of the Sycamore Knitting Mills.
Columbus. Georgia Mfg. Co. New building, 140 by 48 feet, 2 stories, under construction. Will add new machinery.. Old building to be utilized for dye house.
Columbus. Topsey Hosiery Mills. New buildings erected and plant removed from Tupelo, Miss.
Grantville. Grantville Hosiery Mills. New spinning mill erected, 80 by 306 feet, one story, brick. Installed 25 additional knitting machines and 3,000 spindles.
Rome. Rome Hosiery Mills. To double capacity by installing additional machinery.
Rossville. Richmond Hosiery Mills. Erected new two story brick building, 100 by 200 feet. Installed 5,000 spindles for making own yarns.

INDIANA.

Fort Wayne. Wayne Knitting Mills. New power plant completed. Installed large engine and 2 boilers.

IOWA.

Des Moines. Des Moines Hosiery Mills. A new warehouse under construction, 150 by 54 feet, brick. Erected so that additional stories may be added at any time.

MASSACHUSETTS.

Boston. Boston Knitting Mills. Removed to 1160 Washington street. Joseph Lewenburg, manager. Increased capacity.
Lowell. Lawrence Manufacturing Co. Building a three story addition, 234 by 70 feet, brick, to one of the mills, for additional carding and spinning room.
Northampton. McCallum Hosiery Co. An addition, 140 by 90 feet, built and installed additional machinery including 10 knitting machines.

MICHIGAN.

Muskegon. Amazon Knitting Co. Addition made to mill and 3,000 new spindles and 15 new knitting machines installed.
Perry. Perry Glove & Mitten Co. New building, 123 by 33 feet, under construction; to install about 50 more machines. Also used for stock and storage of finished goods.

NEW HAMPSHIRE.

Laconia. Wood, H. H., Co. New mill erected ready for occupancy about January '06. To have total equipment of 9 sets cards, 200 knitting and one sewing machines.
Tilton. Union Hosiery Co. F. P. Stewart, proprietor. Plant removed here from Laconia. Installed 2 sets cards for making yarn.

NEW JERSEY.

Dover. Guenther, Paul. Enlarged mill and doubled capacity of plant.
Haddonfield. Estaugh Knitting Mills Co. Incorporation Estaugh Knitting Mills. Capital $25,000. Installed additional machines.
Newark. Lindner, Hugo. Removed to larger building and increased machinery by 10 machines.
Riverside. Taubel, W. F. New dye house erected, 150 by 40 feet, and drying house, 220 by 40 feet, one story. Equipped with latest improved machinery. Knitting machinery installed in the old dye house, increased capacity of plant one-third.

NEW YORK.

Johnstown. Diana Knitting Co. Installed dye plant. New building erected, 28 by 50 feet, one story.
Kinderhook. Elk Knitting Mills. Installed 5 power and 40 hand machines; also remodeled mill building.
Perry. Perry Knitting Co. Building an addition to yarn mill and will install 6,000 ring spindes, with carding and picking machinery.
Syracuse. Oak Knitting Company. Installed new knitting machines and sewing machines at mills at Syracuse and Arcade.
Utica. Utica Knitting Co. Enlarged picker room, 60 by 120 feet, and 4 story addition, 100 by 50, to dye house.
Waterville. Oneida Hosiery Co. (Oneida, N. Y.). Branch mill at Hamilton, 50 knitting and 3 sewing machines, removed here. Added a dyeing and finishing department also.

NORTH CAROLINA.

Elizabeth City. The Elizabeth City Hosiery Company. Negotiating for construction of yarn plant.
Kernersville. American Hosiery Mills. Installed 16 new knitting machines and ribbers for 84 needle hose, in mill.
Winston-Salem. P. H. Hanes Knitting Co. Enlarging mill with addition, 50 by 30 feet, five stories.

OHIO.

Cleveland. Friedman, Blau, Farber Company. New building, 120 by 200 feet, four stories, with addition, 147 by 55 feet, one and two stories, under construction; complete January 1st. Will install a 300 h. p. power plant.

PENNSYLVANIA.

Adamstown. Adamstown Hosiery Mill. Erected new mill building.
Allen. Allen Knitting Company. New building erected. Installed 30 knitting machines.
Allentown. Southdown Knitting Co. New dye house built, also drying room, 50 by 100 feet; equipped with new machinery.
Avon. Light & Bomberger. Purchased building, replacing plant destroyed by fire. Equipped with 24 Boss and 25 Bonnaz machines.
Bechtelsville. Kutz Knitting Mill. Branch of main plant at Reading. Ladies' white foot hose and half hose; 1 sewing machine; 78 machines.
Columbia. Gem Hosiery Co. (Mohrsville.) Purchased Gem Knitting Mills and operate as a branch plant.
Greencastle. Windsor Knitting Mills. New building erected, 30 by 45 feet, two stories; and about 80 more machines added. New 40 h. p. engine also put in.
Hellertown. Rosenau & Loeb. Liberty Hosiery Mill. (Philadelphia.) Established branch mill here. Will operate about 110 machines.
Mohnsville. Leininger, Wm. G. Addition built to mill and 10 new knitting machines installed.
Nazareth. Wunderly Hosiery Mill. Installed 10 new machines.
New Cumberland. New Cumberland Knitting Mills. Installed 15 additional machines.
Newport. Romberger, H. A. Addition built to mill and 20 new machines added.
Norristown. Ballard Knitting Company. $50,000. Formerly the Ballard Knitting Mills. Erected new three story brick building, 50 by 75 feet.
Norristown. DeKalb Knitting Mills. Purchased additional machinery and doubled capacity of the mill.
Norristown. Rambo & Regar, Inc. Four story addition built to main building, also new boiler house, 24 by 43 feet, and power house, 17 by 38 feet. Increased former machinery capacity, two-fifths.
Philadelphia. American Knitting Mills. Leased two additional floors, and added 10 new knitting and 5 sewing machines.
Philadelphia. Brownhill & Cramer. Remodelled mill building, made two additions, 30 by 50 feet, and installed additional machinery.
Philadelphia. Carvin Knitting Co. Removed to Jasper and Cambria streets. Added 30 new National machines.
Philadelphia. Guenther, Geo. G. (Reading.) Purchased Narrow Fabric Co. building. Will equip for making hosiery.
Philadelphia. Keystone Embroidery Works. Lazowick Bros. Removed to new building, 514 Pine street. Capacity of plant increased.
Philadelphia. Miller & Sons, 3839 Reno street. Installed dye and finishing plant.
Philadelphia. Novelty Knitting Mills, 70-72 N. 4th street. Added 5 new Lamb machines.
Philadelphia. Taubel, Wm. F. (Riverside, N. J.), 2d street, above Columbia; Branch Mill.
Reading. Rainbow Hosiery Co. Purchased equipment (70 machines) of Consolidated Hosiery Co. (Philadelphia) and installed in the mill.
Reading. Gem Knitting Mills Co. Removed plant to new mill at Second and Buttonwood streets. To increase capacity to 500 or over before spring.

Ringtown. Ringtown Knitting Mill. Branch of the Danville Knitting Mills Co. Men's seamless half hose; 31 knitting machines. (Will add 70 more machines.)
Schuylkill Haven. Berger, H. & Son. New building, 40 by 110 feet, 2 stories, for finishing; old building used for knitting purposes and storage. Also added more knitting machines.
Temple. Maidencreek Hosiery Co. Main mill at Maidencreek. Branch mill established here. Men's 160 needle half hose and infants' 1 by 1 ribbed hosiery; 30 machines.
Topton. Crown Knitting Company. Added 20 more knitting machines.

RHODE ISLAND.

Thornton. British Hosiery Co. Addition, 2 stories, 125 by 45 feet, brick, for new imported full fashioned hosiery machinery.
Thornton. Samuel Fitch Mfg. Co. Addition built to the plant.

SOUTH CAROLINA.

Jonesville. Jonesville Mfg. Co. Installed 5,000 mule spindles.
Landrum. Blue Ridge Hosiery Mill. Installed 25 new seamless machines.
Spartanburg. Crescent Manufacturing Co. Added 40 more latch needle knitting machines to plant, also increased capacity of the dye house by additional machinery.

TENNESSEE.

Chattanooga. Chicamauga Knitting Mills. Added more machines, increasing output to about 250 dozen daily.
Knoxville. Standard Knitting Mills. Built an additional story, 40 by 180 feet, to mill, and added 5 new knitting machines.
Sweetwater. Mascot Knitting Mills. Addition, 60 by 40 feet, three stories and basement, built to mill and ten new knitting machines installed.
Sweetwater. Sweetwater Hosiery Mills. Installed 36 new knitting machines and 9 ribbers.

WISCONSIN.

DePere. Oneida Knitting Company. Addition, 50 by 60 feet, two stories, with basement, built to mill.

SILK.

CONNECTICUT.

Mystic. Rossie Velvet Co. Building addition to mill; will add 80 new looms.
New London. Brainerd & Armstrong Co. New dye house under construction.
Norwalk. Muller Gloria Mills. Installed 36 more looms.

MICHIGAN.

Belding. Belding Silk Mills. Installed 50 new looms.

NEW JERSEY.

Oxford. Singleton, George. (Dover.) Started branch silk mill at this place; throwing.
Washington. Roessel, Louis, & Co. Installed 42 new looms.

NEW YORK.

Buffalo. Duffy Silk Co. Erected new building, 200 by 50 feet, 3 stories.
Chadwicks. Chadwicks Silk Co. Remodeled old Stewart Mill and equipped with machinery.
College Point. Myhnepo Mills. Addition, 100 by 100 feet.
North Tonawanda. Gloversville Textile Co. New building under erection, November, '05, for branch mill.
Saratoga Springs. Clark Textile Co. (Sidney.) Erected additional mill here.
Whitehall. Champlain Silk Mills. Addition built and 6,000 more spindles put in.

PENNSYLVANIA.

Allentown. Dery, D. G. Leased additional space and installed 80 looms for making broad silks.
Carlisle. York Silk Mfg. Co. Installed 6,500 more spindles in Carlisle Mill.
Chambersburg. Chambersburg Silk Mill. Built an addition, 150 by 170 feet, to mill and installed 20 new looms.
Easton. Easton Silk Co. Installed about 100 new broad looms.
Hamburg. Hamburg Silk Mill Co. Remodelled storage room into warping and winding department. Installed winders, quillers and warping machine; also added 20 looms, giving total of 117 looms.
Jessup. Valentine Bliss. New mill building erected; transferred Peckville plant one mile distant to new mill. Installed 2,400 new spindles.
Kingston. Crane Bros. Silk Co. (Topton.) Branch mill started here.
Kingston. Hess, Goldsmith & Co. New mill, 300 by 60 feet, three stories, with separate engine and boiler house, erected and operated as branch mill. Started 9/05.
Kutztown. Kutztown Silk Mill. Branch York Silk Co. 48 looms. Will build a one story addition.
Norristown. Art Fibre Co. (Office 1017 Race St.) Removed plant here where buildings have been remodeled for purpose.
Philadelphia. Loeb, Lipper & Co. New addition, 54 by 112 feet, 6 stories.
Philadelphia. Orinoko Mills. Large addition built to main building; also new addition, 52 by 44 feet, to dye house, and new boiler and engine house.
Philadelphia. Pine Tree Silk Mfg. Co. New building erected, Allegheny avenue and Boudinot street. With power house.
Philadelphia. Simon, R. & H. (Easton, Pa.) Leased quarters, Kensington avenue and Ontario street. Ribbons; 30 looms. (E)
Scranton. Paul Clemens Silk Mfg. Co. New addition built, 25 by 50 feet, two stories, and 10 more warping machines added.
Slatington. Post & Sheldon Corp. Erecting an addition, 130 by 53 feet, 3 stories. To add looms.
Tryone. Schwarzenbach, Huber & Co. (Altoona.) To erect branch mill here. Will install 75 additional looms in Altoona plant.
West Pittsburg. Woodhouse, Bopp & Co. New building erected, 540 by 90 feet, one story, brick. Equipped with 350 looms.

RHODE ISLAND.

Pawtucket. Royal Weaving Co. New building completed, 521 by 128 feet, 2 stories.

MISCELLANEOUS.

CONNECTICUT.

Jewett City. Jewett City Textile Novelty Co. Rebuilt plant destroyed by fire, 50 by 125 feet, 3 stories, brick, and erected an additional bleaching building, 40 by 60 feet, one story, gray room, 26 by 40 feet, one story.

MASSACHUSETTS.

Attleboro. Wolfenden, R. & Sons. Installed new 175 h. p. boiler; two (Klauder-Weldon) dyeing machines, and an 85 h. p. (Corliss) engine; equipped works with automatic sprinklers and add spoolers in spooling department.
Lawrence. Lawrence Dye Works Co. Enlarging plant by addition, 250 by 60 feet, 3 stories, brick.
Ludlow. Ludlow Mfg. Associates. Addition, 177 by 66 feet, two stories, and one 80 by 97 feet, four stories, to Mill No. 8, for packing room and storehouse to facilitate shipping.
West Millbury. Millbury Scouring Co. Thos. Windle & Son, proprietors. Rebuilding plant destroyed by fire.

NEW JERSEY.

Wortendyke. Granite Linen Co. $200,000. Started rebuilding plant destroyed by fire. Make household linen goods. Will install 2,000 new spindles and 250 looms. (Will start operations about February, '06.)

PENNSYLVANIA.

Philadelphia. Firth & Foster Co. Erected new 3 story dye house, 77 by 82 feet.
Philadelphia. Mawson, John, Hair Cloth Co. Addition, 50 by 50 feet, 3 stories, built to mill, and increased capacity with 72 serge and 20 hair cloth looms.
Philadelphia. Scheiter, Joseph J. & Co. Removed plant to Howard & Lehigh avenues. Added 20 new hair cloth and ten 70 inch looms.

RHODE ISLAND.

East Greenwich. Greenwich Bleachery. Erecting a new building, 100 by 50 feet, 2 1/2 stories.
Pawtucket. Home Bleach & Dye Works. Addition, 72 by 65 feet, 3 stories, made to plant.

TEXTILE PROCESSES.

EDITED BY E. A. POSSELT.

OUR TEXTILE DESIGN SCHOOL.

LESSON XVI. FIGURING WITH WARP OR FILLING UPON THE PLAIN WEAVE.

This system of designing is extensively practiced in connection with figured cotton goods for all purposes, also in connection with textiles known as "zephyr." In most instances the filling is used for producing the figure by means of floating upon the fabric interlaced otherwise with the plain weave; however, in some instances this figuring may be done by means of the warp, or with both systems of threads—warp and filling. In many instances the general effect of the design is heightened by means of color effects, i. e., using a different color for warp and filling; again in some instances, when dealing with single color fabrics, we may use a plain cotton yarn for the warp in connection with a mercerized cotton, or silk, for the filling. In connection with what is known as cotton zephyr for dress goods, we will mostly find a cotton warp used in connection with a worsted filling.

The harness loom, as well as the jacquard machine, are used for producing these fabrics, according to fashion, which, as will be readily understood, sometimes calls for simple, neat little effects, whereas in other seasons it may call for loud, large, jacquard designs; however, both systems of designing, with reference to their principles, are identical, and for which reason we will deal with both in one lesson.

HARNESS WORK.

In order to explain this sub-division, the accompanying two plates of weaves are given, representing what we may style as plain, small effect work; weaves which we will meet every day in figured dress goods, shirtings, etc., and by means of which the reader will readily accumulate the knowledge to be able to produce any amount of other weaves by them. Again, the collection of weaves thus given are all of such importance that he should keep them for future reference when in need of new designs, and for which reason they will come handy in practical work.

Examining this collection of weaves, we find in connection with weave Fig. 1, a small spotted affair, calling for its repeat 8 warp threads and 8 picks, being about the smallest spotted arrangement we could use. The principle observed in distributing the spots all over the fabric is after the "plain weave motive." This weave will require for its execution 8 harness straight draw, although if necessary on account of limited number of harnesses at our disposal, and provided this weave has to be used in connection with other weaves, either for stripes or ground work, this weave could be woven then on 6 harness fancy drawing in draft.

Weave Fig. 2 shows us a similar spotted arrangement upon a plain ground, a somewhat larger effect than shown before, repeating on 10 warp threads and 10 picks, the principle observed in distributing the spots is again after the "plain weave motive," a motive we most always have to use in connection with harness work, for the fact that in this way we are able to make use of as few harnesses as possible, on account of the two changes only required by using this motive. The repeating of this weave is 10 by 10, calling for a 10 harness straight drawing in draft for practical work, although similar to weave quoted before, if necessary, 8 harnesses will have to do the work.

Weave Fig. 3 shows us a somewhat more prominent spot than given in the previous two examples, the motive for exchanging these spots being again done after the "plain weave motive." This weave will require 12 harness straight draw for its practical execution in the loom, with a permissable reduction to 10 harness if absolutely necessary, for one reason or the other.

Ringtown. Ringtown Knitting Mill. Branch of the Danville Knitting Mills Co. Men's seamless half hose; 31 knitting machines. (Will add 70 more machines.)
Schuylkill Haven. Berger, H. & Son. New building, 40 by 110 feet, 2 stories, for finishing; old building used for knitting purposes and storage. Also added more knitting machines.
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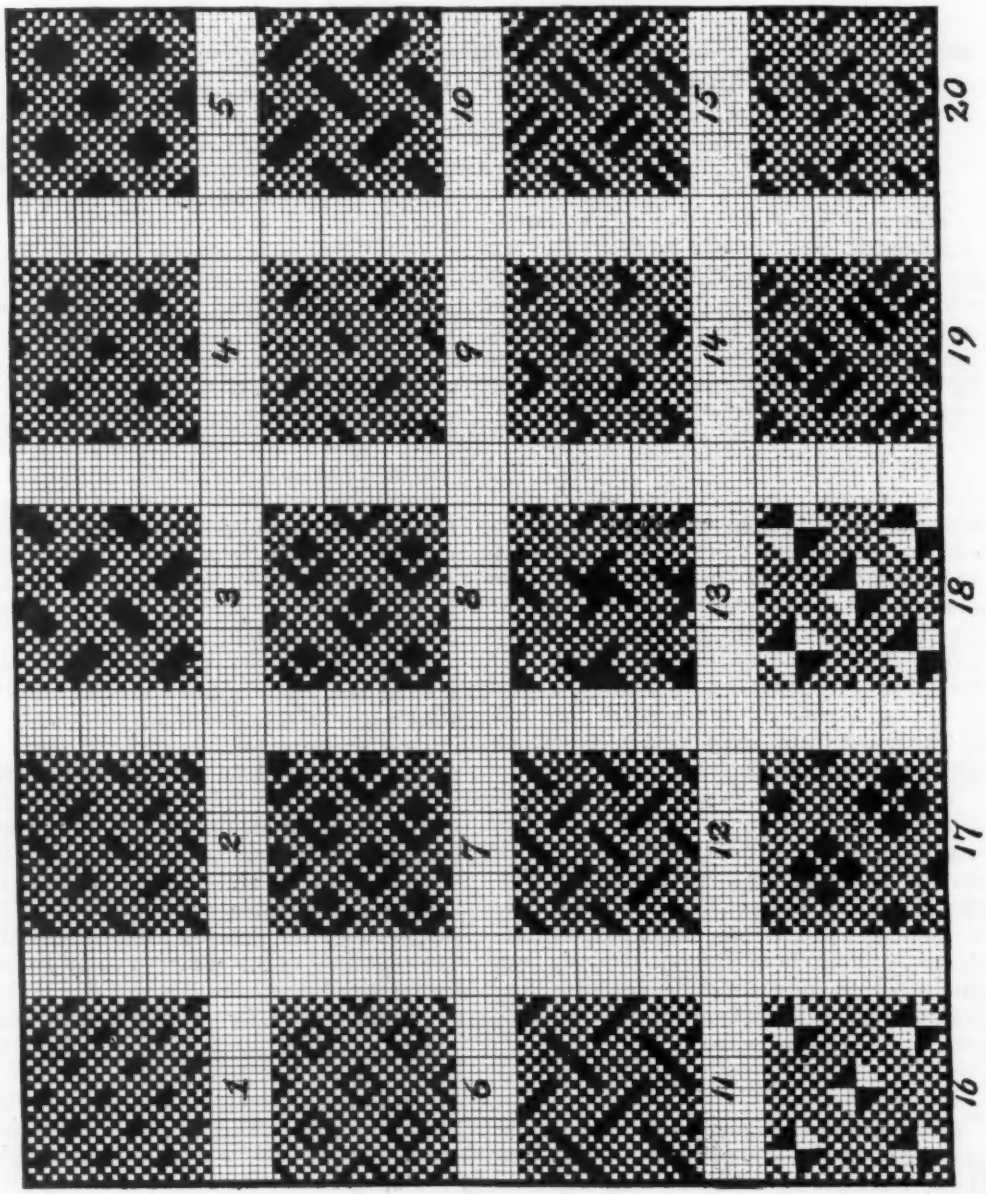
Weave Fig. 2 shows us a similar spotted arrangement upon a plain ground, a somewhat larger effect than shown before, repeating on 10 warp threads and 10 picks, the principle observed in distributing the spots is again after the "plain weave motive," a motive we most always have to use in connection with harness work, for the fact that in this way we are able to make use of as few harnesses as possible, on account of the two changes only required by using this motive. The repeating of this weave is 10 by 10, calling for a 10 harness straight drawing in draft for practical work, although similar to weave quoted before, if necessary, 8 harnesses will have to do the work.

Weave Fig. 3 shows us a somewhat more prominent spot than given in the previous two examples, the motive for exchanging these spots being again done after the "plain weave motive." This weave will require 12 harness straight draw for its practical execution in the loom, with a permissable reduction to 10 harness if absolutely necessary, for one reason or the other.

Weave Fig. 4 shows us a neat, little "polka dot" set after the "plain weave motive," and repeating on 12 warp threads and 12 picks. This weave will require for its practical execution on the loom 12 harness straight draw, although on account of the pointed effect of the spot this design can be reduced to weave in connection with 6 harness (fancy draw)



only. It is a commonly met with design, very frequently used on account of the neat effect it will produce. The weave in itself will at once suggest to us that provided the spot is too small, i. e., its effect is too small in the fabric, we then can readily increase it to a larger float, either by increasing the present main float of 5 to 7, leaving the repeat of the weave as it is, or at the same time putting the spots farther apart from each other, in the latter instance certainly increasing the repeat of the weave. If doing the latter, i. e., distributing the spots farther apart from each other, with a consequent increase of the repeat of the weave both warp and filling ways, we then can increase the present float of 5 up to 9 or 11, etc., according to the texture in the fabric and the size of spot in fabric desired.

Weave Fig. 5, repeating on 12 warp threads and 12 picks shows us the spot as shown in connection with weave Fig. 4, increased from 5 to 7, without increasing the repeat of the weave, although 12 harness, straight draw, will be the proper arrangement to use; at the same time, if desired, this weave can be executed on 7 harness, fancy draw.

Weave Fig. 6 repeats on 12 harness and 12 picks, calling for 12 harness straight draw, or, if so required, 7 harness fancy draw.

Weave Fig. 7 shows us another one of these spot effects, repeating on 12 harness and 12 picks, which, however, if required, can be woven on 8 harness fancy draw.

Weave Fig. 8 shows us the same spot as shown in connection with weave Fig. 7 on 12 by 12, executed this time with 14 warp threads and 14 picks, a feature which consequently will give us more ground work between the spots, i. e., show them up more prominently, and, considered all around, is a superior combination of this spot than the previously given one.

Weave Fig. 9 illustrates the same spot as previously shown in connection with weave Fig. 2, spread more apart, i. e., more ground work used in connection with each spot, and consequently the spots will show up more distinctly from each other. This is accomplished with a proportional increase in the number of harnesses used, since in connection with weave Fig. 9 we call for a repeat of 12 by 12, whereas in connection with weave Fig. 2 we only use 10 by 10. Use 12 harness straight draw, although if necessary 8 harness fancy draw will have to do.

Weave Fig. 10 shows the effect previously given in connection with weave Fig. 3, enlarged, without calling for more warp threads and picks for the repeat of the design; we simply used more of the ground work for the spot, in turn producing a weave showing a more or less intertwining effect, one twill effect line intertwining with another twill effect line always at an angle of 45 degrees, a very neat effect, requiring, as previously mentioned, 12 by 12 for its repeat.

Weave Fig. 11 shows us another intertwining effect, repeating on 12 warp threads and 12 picks; the twill effect line in this instance being somewhat more delicate than the one used in the previously given example. These intertwining twill effects, as shown in connection with the last two examples (and of which another one is given in connection with weave Fig. 12), do not permit the reduction of harnesses, i. e., the straight drawing in draft calling for every warp thread in the weave has to be used.

Weave Fig. 12 shows us a similar effect of such an intertwining twill on plain ground work, calling for 10 warp threads and 10 picks for the repeat of the pattern, i. e., 10 harness straight draw for the execution of the weave in practical work on the loom.

Weave Fig. 13 shows a "star effect," calling for its repeat 12 by 12, in connection with 12 harness straight draw.

Weave Fig. 14 repeats on 12 by 12, to be used in connection with 12 harness straight draw, or, if so required, 7 harness may be used for its execution on the loom.

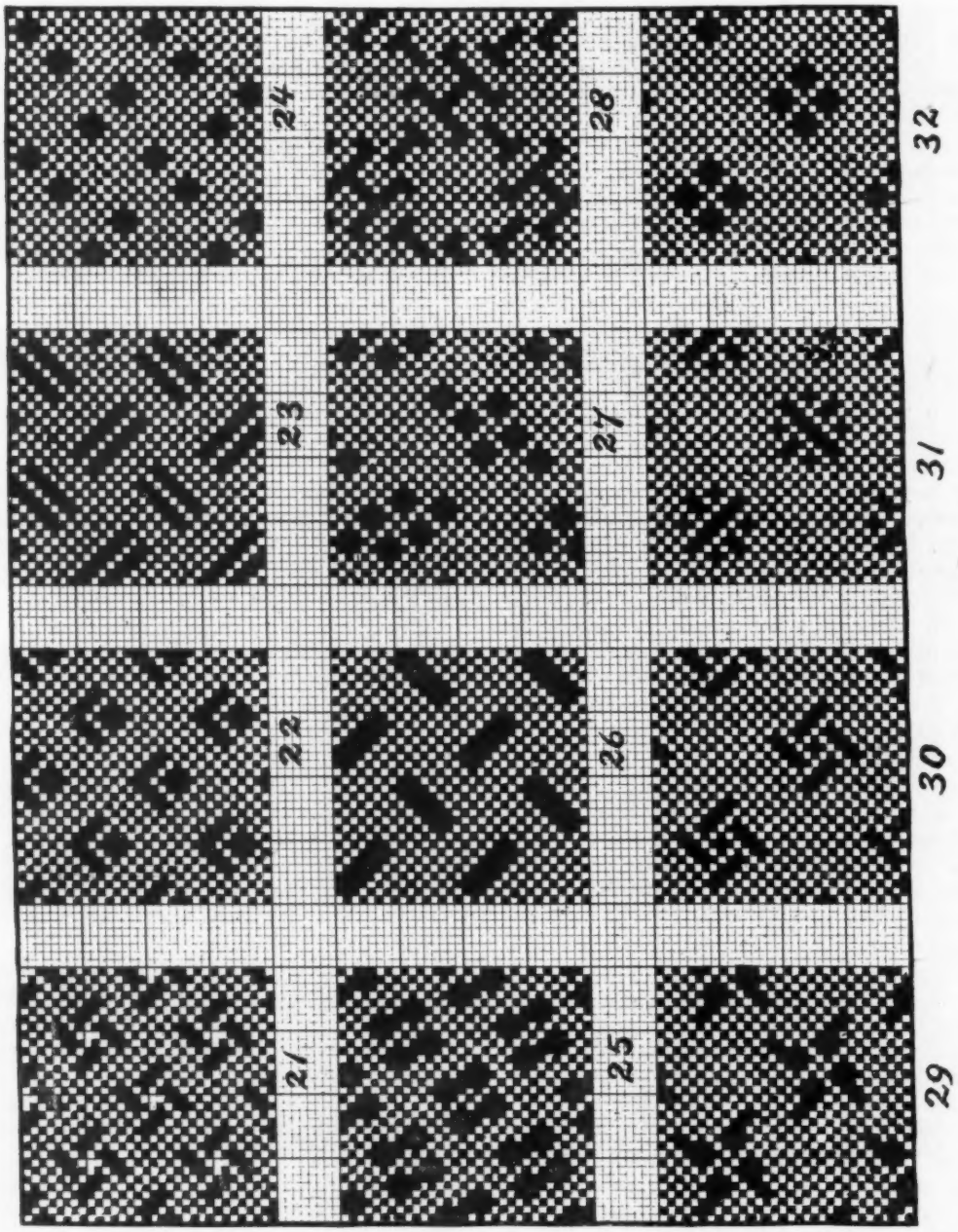
Weave Fig. 15 shows us a "double twill effect," arranged after the intertwining twill motive, upon a plain ground work, the weave repeating 12 by 12, with 12 harness straight draw for the loom

Weave Fig. 16 repeats on 16 warp threads and 16 picks, forming a warp and filling "star effect" upon a plain ground, which in connection with the proper texture used will produce a nice effect in the fabric.

Weave Fig. 17 repeats on 18 warp threads and 18 picks, showing us 4 small dots in a

bunch, transposed after the "plain weave motive" upon the plain ground of the fabric. If required, this weave can be woven on 8 harness fancy draw in place of 18 harness straight draw.

Weave Fig. 18 shows another warp and filling effect weave, repeating on 16 warp threads and 16 picks, an effect somewhat resembling the one previously shown in connection with weave Fig. 16. The repeat of the weave is 16 warp threads and 16 picks, 16 straight harness draw in the loom.



Weave Fig. 19 repeats on 18 warp threads and 18 picks, 18 harness straight; whereas weave Fig. 20 on the same plate of weaves calls for 12 by 12 for the repeat of the weave only, using 12 harness straight draw in connection with it.

Weaves Figs. 21, 22, 23, 24, 25 and 26 show us six weaves repeating on 16 warp threads and 16 picks each weave, being a combination of some excellent effects for this class of fabrics. Sixteen harness straight draw will be the number of harnesses properly to use for them, although some of them can be reduced to a few harnesses less, if so required.

The other six weaves on plate No. II., i. e.,

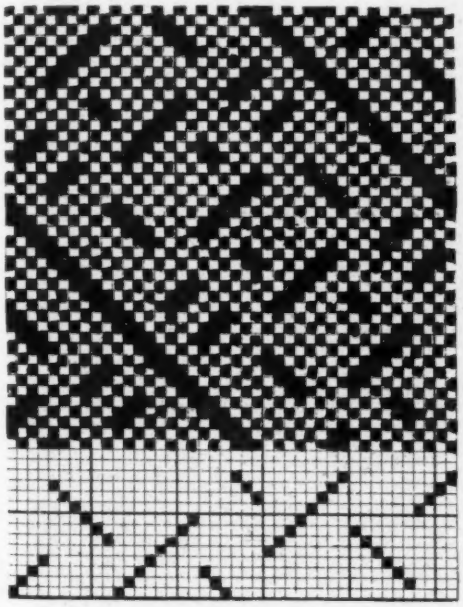


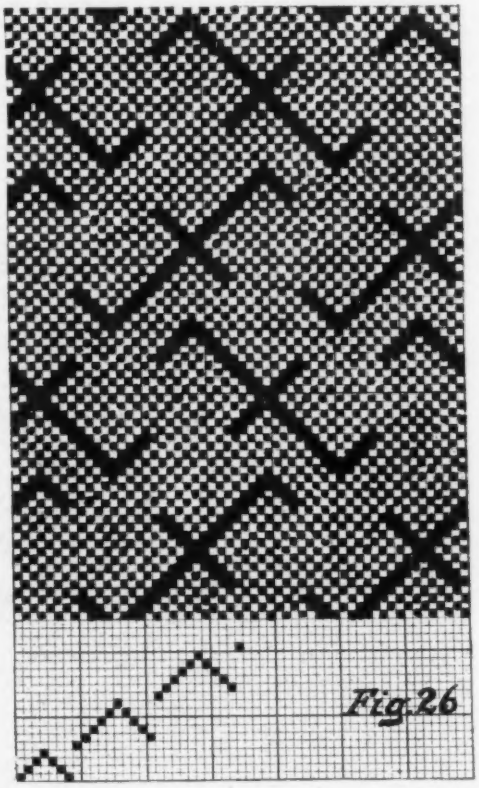
Fig. 25

weaves Figs. 27, 28, 29, 30, 31 and 32, call for 24 warp threads and 24 picks (each weave having this repeat) in connection with 24 harness straight draw on the loom.

JACQUARD IMITATION EFFECTS.

Some excellent designs for the class of fabrics previously referred to, and closely resembling jacquard effects, can be produced by means of these weaves, by making use of a proper distribution of the spotting, so as to be able, by means of cross drawing, to use only a few harnesses in connection with designs repeating on 40 or more warp threads and picks, as the case may require. Weaves Figs. 25, 26, 27, 28 and 29 show examples, and which will be the foundation for us to be able to construct any amount of new designs from them.

Weave Fig. 25 repeats on 42 warp threads



and 42 picks, but by means of drawing in draft, given below, the weave can be executed on 12 harness fancy draw as shown. We have not shown the harness chain for this weave, neither those for the other weaves hereafter referred to, for the fact that this is simply work of drafting by the reader: "Reproduce the interlacing of each warp thread with its filling only when called for the first time, on a certain harness."

Breaking and turning the draft enables the production of large all over figures, and of which weave Fig. 26 is an example. These effects, however, are more or less difficult to produce, without defects, i. e., lines producing

in the fabric by the interchanging of the figure in these harness effects, whereas in connection with jacquard work they will overlap, and streaks consequently be avoided; however, good harness loom imitation can be produced in this way in connection with cheaper grades of fabrics, and give all the satisfaction required by the purchaser. Mills only having harness looms at their disposal, in this manner being able to introduce fancy effects in their range of goods. The draft for the weave is given below the latter, the same calling for 17 harness fancy pointed draw, as shown.

Fig. 27 shows us another design calling for 42 warp threads and 42 picks for its repeat, requiring for its execution on the loom 12 harness, as per drawing in draft given below the weave, and which will at once explain itself.

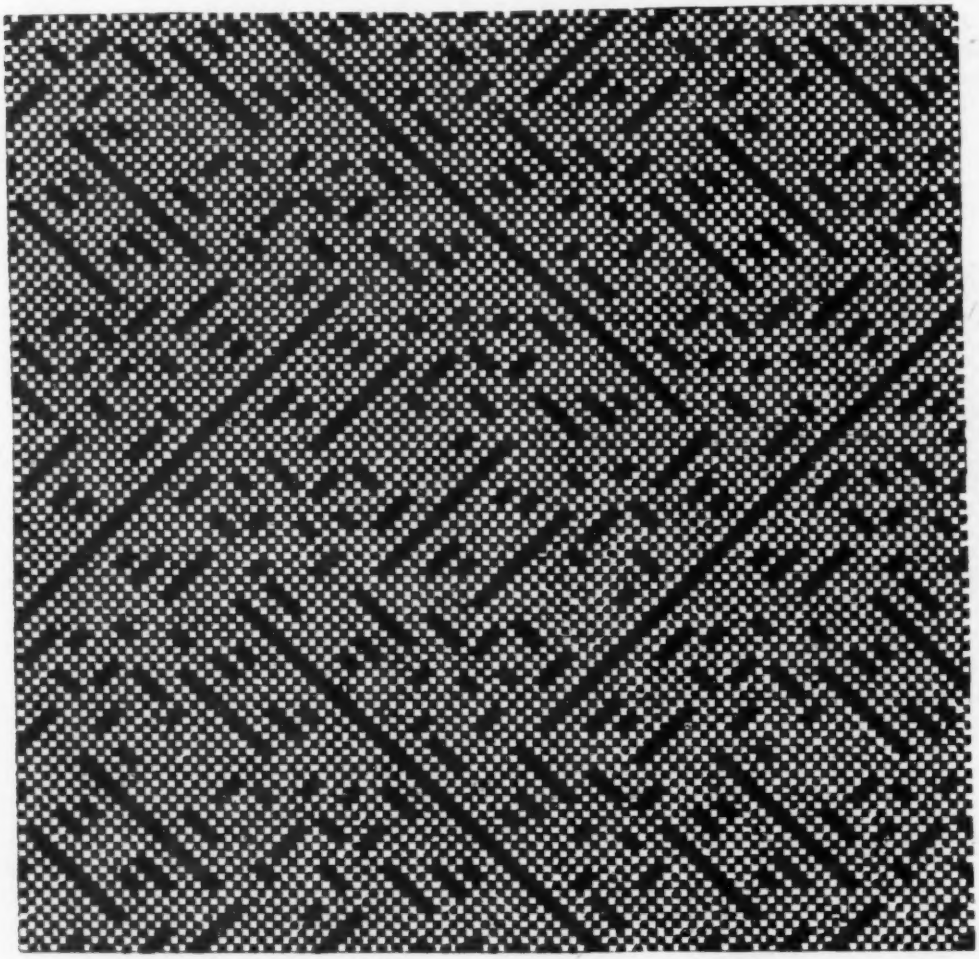


Fig. 28

Weave Fig. 28 shows us a very elaborate weave for the present system of jacquard imitation designs for cotton zephyrs, etc., and which by means of its proper drawing in draft can be reduced to weave with 16 harness only, whereas the complete weave in itself, as given in weave Fig. 28, calls for 80 warp threads and 80 picks in one repeat. A

repeat and a half in both directions in the design are given so as to show up the effect produced in the fabric more distinctly.

It will be readily understood that an immense variety of new weaves can be produced by following the principles underlying the construction of the last four jacquard imitation weaves.

Weave Fig. 29 shows us a chain effect, i. e., a stripe effect, repeating on 56 warp threads and 36 picks. This weave can be executed on

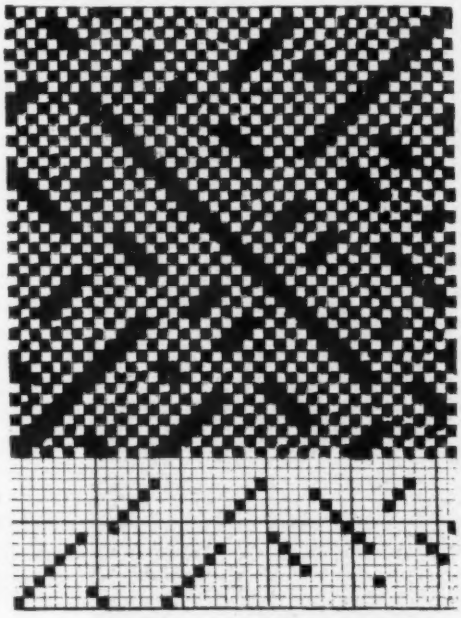


Fig. 27

12 harness on the loom, and at the same time will give the reader a guide for producing similar weaves by.

Imperfections in the yarn must be carefully avoided in connection with these fabrics, for the fact that imperfections in the yarn are visible in the cloth, and for which reason it must be remembered that in connection with the better grades of fabrics, every care possible must be taken to use only a perfect, even smooth yarn, the filling must be clean of all lumps, bunches or knots. Care must be exercised that no double ends are coming off the bobbin; in fact, every precaution must be taken to reduce the chance for imperfections in connection with these weaves, and

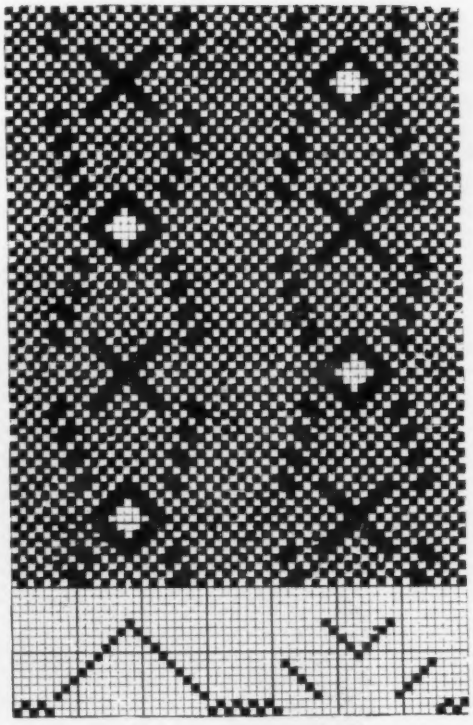


Fig. 29

which is only accomplished by using a perfect yarn.

JACQUARD WORK.

The jacquard machine is also employed in

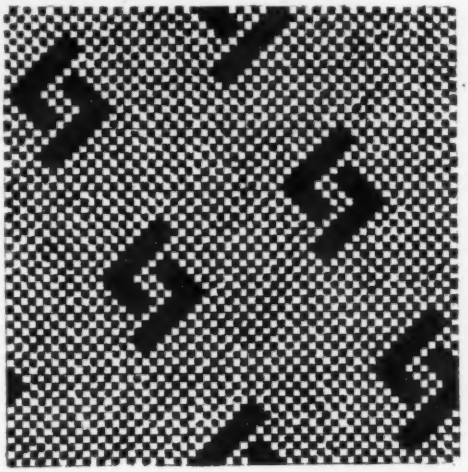


Fig. 30

the manufacture of these fabrics and some very neat designs are produced in this manner. We will only show two designs, viz.: a small geometrical effect and a somewhat larger floral effect.

Weave Fig. 30 shows us such jacquard design, repeating on 60 warp threads and 60 picks, calling for (60×5=) a 300 jacquard machine, or if used in connection with a 600 jacquard machine 10 repeats of the design will have to be cut. The distribution of the spotted effect is done after the "five leaf satin setting." The position of each figure for this setting is found by dividing the available space into 5 equal parts, arranging the distribution of the spots then after the five leaf satin order in the mapped out squares.

Weave Fig. 31 shows us a floral design repeating on 96 warp threads and 96 picks, which can be executed on a 200 jacquard machine by means of cutting the design twice over, on a 400 jacquard machine, if cutting it four times over, on a 600 jacquard machine if cutting it six times over, taking care in each instance to miss the required number of needles and hooks in the machine, as well as their respective harness cords and needles in the jacquard harness. By this we mean that if the design in question is to be executed on a 200 jacquard machine then 8 needles and hooks have to be omitted, and 8 harness cords and 8 needles in each division of the jacquard harness. If we would refer to a 400 jacquard machine, 16 hooks and needles in the machine as well as 16 harness cords and needles in each division of the harness would have to be omitted. In connection with a 600 jacquard machine 24 taking the place of 16 in the previous example quoted.

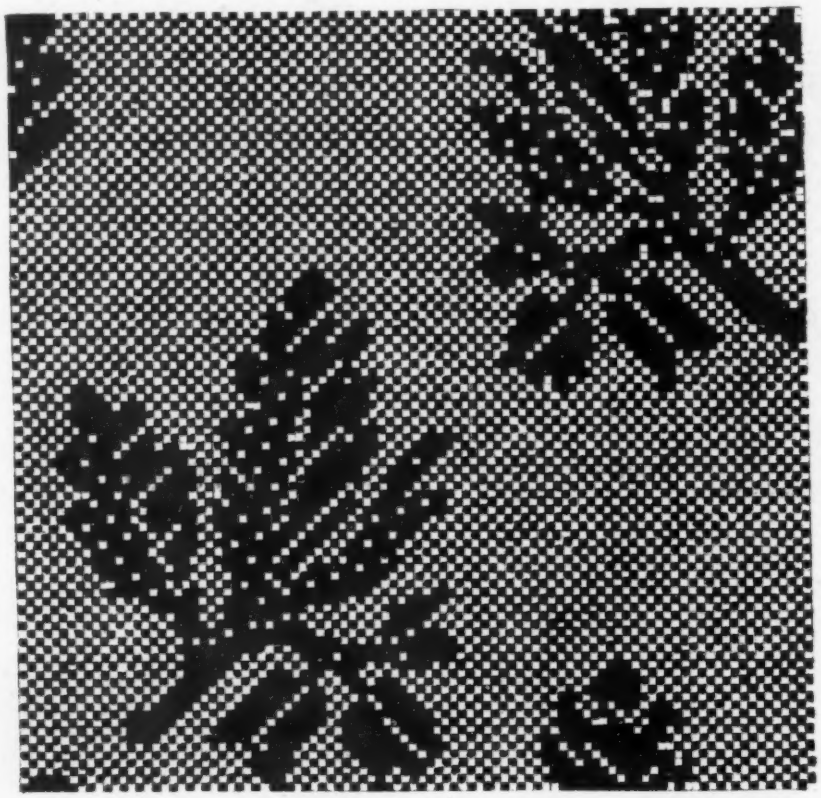


Fig. 31

RETTING FLAX.

ITS OBJECT; THE OLD PROCESS; A NEW WAY OF DOING IT.

The portion of the flax plant as used in the manufacture of the linen yarn is the bast tissue, situated between the bark and the hard or woody tissue. The characteristics of the flax fibres are their length, strength, fineness and color.

The fibres of the flax vary with the tapering character of the stem, and the natural ends are sharp pointed and generally long drawn out. Good flax should average about 20 ins., and be free from fibres 12 ins. long. In order to obtain a good fibre, the plant must be pulled before it has attained its full maturity; namely, when the lower portion of the stalk, to the extent of two-thirds of its height, has become yellow, and while the bolls or seed capsules are just changing from green to brown. At this stage the plants are pulled in handfuls, and these are laid across each other diagonally until a sheaf is complete, when the whole is carefully bound. Stems of a different length should be pulled separately and kept in separate sheaves.

The next process to which the freshly pulled flax is submitted is rippling, which has for its object the separation of bolls from the stems, this process as a rule being carried on in the same field where the flax was grown.

The next procedure the thus rippled flax is subjected to is retting, and which consists in disengaging the bark of the stalk from its filamentous parts, said operation dissociating also said filaments partially or more or less completely. The substance uniting the filaments or fibres of a stalk and causing said filaments to adhere to the straw of the stalk, the "pectose," comprises two distinct kinds of gluing materials, viz: a gum, which is soluble in water, and a resin, insoluble in water, and which must be previously decomposed in order to become soluble. When said resinous gum is submitted to the retting action, it is caused to ferment and decompose to a glutinous substance which is soluble in water by the action of the retting process. In order to accelerate the retting operation and obtain a perfect work, it is necessary to enable the granulobacter to act without vexation or obstacle.

The old process of retting consists in macerating the previously rippled stems in slow running, almost sluggish waters, from 10 to 14 days, so as to produce fermentation, which aids to separate the bast fibres from the cortical layer. When it is found that the woody portion separates freely from the fibre on breaking the stem about every six or seven inches along its length, the operation is complete, and the flax is then removed and allowed to drain and dry for a few hours, preparatory to being spread evenly and thinly on a meadow and left there from five to six days, in order that by the action of the air and the sun the drying process may be completed, as well as the fibres bleached. This process of "grassing" also renders the wood parts short and brittle, and easily crushed and broken. When dried, the flax is ready for lifting, tying in bunches and storing for the scutch mill.

Another method in use for retting flax is what is called dew-retting, and by which process the flax is spread on a meadow without steeping, and simply exposing it to the action of the weather for six or eight weeks. Damp weather is the most suitable for this system of retting, since all fermentation ceases if the flax becomes dry.

As will be readily understood, the methods of retting flax thus explained are slow work, and can be carried on only in sections of the world where labor is cheap, hence since years chemists have tried to solve a quicker and more reliable process for it, which can be practiced anywhere with good results.

To describe one of the latest (patented) Belgian processes of retting flax, based upon the scientific comprehension of retting and capable of being applied everywhere, forms the object of this article, the accompanying illustration, a vertical longitudinal section of the apparatus, being given to assist in explaining the procedure.

This apparatus consists of a tank divided into three compartments, A, B, C, respectively, compartment A of which being the scouring tank, B the retting tank proper, and C the washing tank. Compartments B and C are divided horizontally into two sub-com-

partments by means of partitions r, as made of jute. The lower compartments d' d'' act as porous vessels and contain the fresh water brought thereto through pipes f f'. The upper compartment e' of the tank B is the retting tank proper and contains the retting water, maintained at a uniform temperature, density and quantity of ferments. The bundles of flax are placed vertically into suitable boxes made of wooden laths, which are raised by means of a winch or otherwise.

The water, before the same enters the tank C, passes through a filter (not shown).

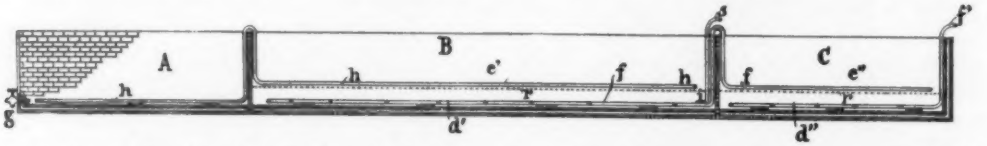
The box filled with flax, as previously referred to, is lowered mechanically into the scouring tank A, wherein the soluble substances are dissolved in the water contained in said tank. During the dissolution, the box is automatically raised and lowered repeatedly, in order perfectly to wash the gum away.

If all the stalks are not perfectly scoured, the microbe of lactic acid will be quickly developed in the gummy dissolution, and said microbe is an enemy to the retting-ferment which is to be developed. It is therefore necessary that the soluble gum of the pectose be completely dissolved and uniformly removed from the whole mass. In the new process the retting action begins immediately after the introduction of flax into the retting tank B.

Description of the New Process. The scouring tank A is filled with water coming from the retting tank B, said water being still suitable for scouring purposes. The scouring of flax being completed, the boxes as previously referred to containing the flax are removed from the tank A and lowered into the tank B. The bath is maintained at a constant yield of retting-ferments and for this reason the retting—that is, the decomposition of insoluble resinous gum—begins immediately after the flax is introduced into the tank. During the operation the box is raised and lowered several times for the purpose of obtaining a perfect and regular retting, fresh water being mixed to the overcharged water in suitable proportions during the process. The movements given to the box containing the flax serve also to mix the oxygen of the atmospheric air to the retting-water, whereby the action of the retting-ferment is greatly increased.

The flax being retted to the desired degree, it is removed from the tank B and immerged in the tank C, wherein the retting action is completed and the flax becomes gold-yellow colored and loses its disagreeable smell of butylic acid. In said tank C, containing the clear water, is furthermore washed off the coloring substances, said operation requiring but a small amount of water, the water being brought from the tank C to the tank B and from the tank B to the tank A.

As previously alluded to, the tanks B and C are divided into compartments d' e' d'' e''



by means of porous partitions r. The fresh, clear water coming from the filter is introduced into the tank C through the pipe f', having a perforated horizontal branch near the bottom of the lower compartment d''. From the tank C the water flows through the siphon-pipe f into the lower compartment d' of tank B, a pipe s being connected to said siphon-pipe for the purpose of mixing clear water to the water coming from the tank C. The slight and regular pressure of water under the porous partitions r, the action of diffusion and the difference of density result in an intimate mixture and therefore in a regular dilution of the retting-bath.

The saturated water of the retting bath flows through the siphon pipe h into the scouring tank A, whence it is finally evacuated through g after each scouring operation. When said tank A is emptied it will be refilled automatically through the pipe h, through which water flows from the tank B into the tank A. The water used in the new process is best condensed water at a

given degree of heat. By the process thus described it will be seen that in connection with the average flax the retting action is complete with a single operation, however for extra grades of flax the same may be re-immerged during a few minutes, the oxidation of the pectose at the atmosphere being thus advantageously utilized.

POINTS ON FINISHING WOOLENS.

The object of this article is to show that when coming in contact with a fabric imperfect with reference to its finish, the cause of the trouble not always rests with the finisher, and frequently may be found in the office of the mill, for the fact that the selection and manipulation of the stock as well as the construction of the fabric, form a most important item in order to permit afterwards its proper finish. For this reason, the superintendent as well as the designer, besides his art, should be familiar not only with the nature and properties of the various fibres, but also with the various processes of finishing, i. e., study the change fibres undergo during the various processes they are subjected to during finishing, in this way preventing lots of trouble and worriment to the finisher, and in turn imperfectly finished fabrics to the mill.

Many a finisher has been held responsible for imperfect results in fabrics finished under his directions, the cause of which can be traced to the flannel before it ever reached the finishing room; especially is this the case when the designing room is in the hands of young men, who until they reached this position had been guided in all their previous work by teachers. He will soon find out that a perfect fabric cannot be constructed by guess-work or by rules. A good plan for him will be to spend as much time as possible right in the finishing room, carefully watching the fabrics through the various stages, and in this way rectify his mistakes at once, when laying out new work; in other words, he has to learn at the expense of the mill he works for, and the quicker he does this the better for the former.

The proper selection and combination of the various stock required for the construction of certain fabrics is of the greatest importance, for the fact that face-finished fabrics, cassimeres, cheviots, meltons, etc., etc., all require a fibre specially adapted for each class of goods; and what will be suitable for one may harm the other. He must be careful, when using any by-products like shoddy, mungo or extracts, both with reference to percentage to be used, as well as its quality. He must remember that a change in the grade of shoddy used may be liable to result in a decided change in the finish of the fabric, especially on account of the variation in the fulling capacity of said two lots of shoddy.

Although there is no use to condemn the use of shoddy in woolen goods if properly used, in its right place, yet at the same time on account of the immense demand for this article we must remember that some of these brands are specially prepared in order to hide any deficiency in staple. We frequently will meet with shoddy to which has been added extra oil in order to feel soft, whereas minus this extra oil, the manufacturer would never have bought said lot of shoddy, on account of its dry and harsh character.

We must also remember that there are shoddies in the market made from "hard" rags, and which article naturally will not full properly. The fabric in connection with which such shoddy was used may full at the beginning, but before the cloth is up to width required, it may stop to do so, with consequent trouble to the finisher, i. e., constant chafing and loss of stock, in connection with an inferior felt upon the fabric in question.

Another trouble frequently met with is the fact often in samples a better stock is used than in the order. The mill who will do this will soon find out that the best plan is, if the goods are to be low grade, show samples to represent them, and do not expect the finisher to correct errors, or overcome changes in stock made by the management of the mill.

Another important item to take into consideration is the proper selection of the texture for the fabric to be constructed, i. e., its proper lay-out. Summed up, the superintendent and designer should carefully consider:

1st. The proper selection and mixing of the stock.

2d. See that the carding and spinning is done right.

3d. Carefully select the proper counts for the yarn to be spun, also its proper twist.

4th. Use the proper warp threads and picks per inch in the construction of the fabric.

5th. Use proper width in reed for the fabric.

6th. Select the proper weave for interlacing warp filling.

Although we quoted these items separately, it must be remembered that in practical work they go hand in hand, and must be considered summed up; the one helps the other, one influences the other. For example, it would be useless for us to talk about the texture of a flannel in the loom, if at the same time we would not take into consideration the counts and twists of the yarns, as well as the weave for interlacing the warp and filling; it would be useless for us to figure on a certain count of warp yarn, if at the same time we would not know what stock to use; it would be useless for us to consider how wide to lay the flannel in the loom if at the same time we were not aware of the felting capacity of the stock used in the construction of the yarn. These few items thus quoted will readily uphold our first assertion that to manufacture textiles means study and practical experience, and cannot be done by means of rules or reading matter in any shape or form, except the party in question will study the latter, a feature which in turn certainly will make his practical work much easier, for the fact that theory and practice go hand in hand. The proper texture for a fabric to use in his construction is a most important item; it is not only a question of the flannel weaving, while on the loom, it is a question is said flannel in the best condition for perfect finishing when leaving the loom, can we expect the finisher to do his work well? We must remember that for example if using an insufficient number of ends and picks in its construction, in order to make it weave well, that then possibly the goods will full too quickly, and in turn come out slazy and soft, no "heft" to the fabric; whereas on the other hand if we had used too heavy a texture in the construction of the cloth, the same might necessitate too much fulling, "over fulling," and when in turn the finished fabric will present a stiff, board-like structure, subjected in many instances to streaks, on account of the "over fulling." Provided this defect is pronounced, the goods sometimes will stop fulling altogether, they will cease to full, and in turn chafe and become tender during the fulling process, provided the same is carried on thinking that possibly they might full. A finisher is powerless to apply a remedy for such a trouble.

The writer of this article clearly remembers a case of this kind. When working as designer and superintendent some twenty-five years ago in one of our then leading New England woolen mills, an order was received for some 300 beavers. The agent of the mill then wanted to show his knowledge of manufacturing and in this case direct their construction. In fact, he took it into his own hands, with the result that when the goods came into the finishing room they stopped fulling altogether when 60 inches wide and never came up to the required width, 56 inches, although the stock he used was of the best quality. Continuing fulling simply caused the fabrics to full themselves tender.

Another point which frequently may trouble a finisher is the change in the by-products used in the mill, for example, the superintendent may change a grade of oil in the picker room. When doing this he may never think what trouble he may thus cause to the finisher. It may not trouble in the carding and spinning, the work may run all right there, but trouble may be plentiful enough for the finisher when he receives the flannel. It may be well said here, "best to let well enough alone," especially when you have been served with a fairly good article, and this at a reasonable price. Never meddle with the new-fangled brands of oils, although they may parade under some high sounding name. Stick to your reliable supply house. The superintendent may never realize the damage done to the mill when

changing by-products. He never will know the anxiety and trouble he may cause a finisher in trying to solve problems which otherwise would not have come up. If a change is made for one reason or the other, then inform the finisher, in order that he can be on the lookout for it, and not cause him unexpected trouble.

Another important item is the soap to the finisher. When he has the proper soap, and such soap retains its vitality to the end of the fulling and scouring processes and more, there is no question but that the fulling and scouring of the goods is an easy process. In fact the latter process, only more of a rinsing, especially if he has lukewarm water at his command. However, if the soap as used for fulling had lost its vitality before the process is finished or just at this point, the soap being of too light a body, then in this instance a scouring soap or liquor has to be used at the washing in order to get the goods clean.

Soaps are salts containing fatty acids, hard soaps resulting when sodium is the base, while potassium gives rise to soft soaps. Soap, when unskilfully made, is liable to contain caustic alkali, potash soaps being particularly liable to this defect, and for which reason it is wrong to suppose that soft soap is a less severe scouring agent than hard soap, the exact opposite being usually the case. The value of any soap largely depends upon the amount and correct proportions of fatty acid and alkali it contains.

Never buy a cheaper oil or a cheaper soap for the sake of saving a penny, it may in the end result in the loss of dollars and dollars to the mill.

In 1902 there were eighty cotton mills in Japan with a capital of $16,750,000. They contained 1,301,000 spindles, and produced 465,000,000 pounds of yarn per year, the average price of which was 9 7/8 cents per pound. The average number of operatives was 71,888, of which 14,375 were males and 57,513 were females. This is at the rate of 18 spindles to each operative. The wages averaged 15 1/2 cents per day for males, and 10 cents for females.

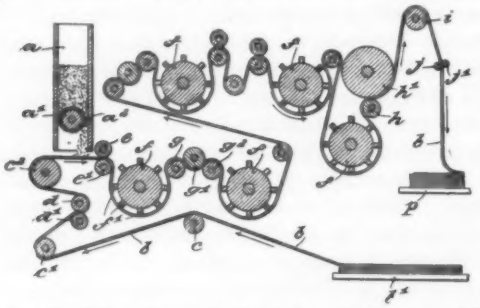
A NOVEL PROCESS OF DRY FLOCKING.

In the February issue of the Textile World Record we gave a thorough description of the process of flocking fabrics in order to increase their weight per yard, explaining then all three procedures practiced, viz: dry flocking, wet flocking and half dry and half wet flocking. It is to the first method of flocking the present improvement in machinery for doing this work more particularly refers, dry flocking being used for the reason that by means of it it is easier to distribute flocks evenly all over the surface of the cloth under operation than by the other two processes previously referred to, it being for this reason extensively practiced in connection with lower grades of kerseys, meltons, beavers and similar fabrics, may they be all wool structures or contain cotton or shoddy as by-products in their construction.

In our article previously referred to we then explain the procedure of the process as practiced in the fulling mill direct on the cloth under operation, whereas the present article has for its object to explain the construction and operation of a dry flocking machine specially designed for doing this work more economically and at the same time more thoroughly, said machine being the invention of John M. Brown of Philadelphia. In connection with the new machine the flocks are presented to the fabric, while the latter travels under tension, in this way forcing the flocks more thoroughly and evenly into the meshes or body of the structure, in this way more permanently thickening the cloth under operation.

The construction and operation of the new machine as well as the process itself will be best explained in connection with the accompanying illustration, which is a longitudinal sectional view of the new flocking machine. Letters of references accompanying said illustration indicate thus: a is the hopper of the flocking machine, and into which are placed the flocks (see shaded portion) which are to be applied to the cloth as it passes through the machine. This application of the flocks to the cloth is done by means of a rotating bristled brush a^1, coming into contact with a comb or toothed plate a^2 so that

by the rotation of the brush the flocks are forced, in a more or less finely divided state, onto the woven fabric. The cloth b, as placed in a folded condition on the platform b^1, is led over tension roll c, under and around tension roll c^1, between pressure rollers d and d^1, and around tension roll c^2, from where it travels in a longitudinal plane beneath the outlet of the feeding hopper a, at which point the flocks are deposited on to the surface of the cloth, in its travel through the machine. After the fabric has passed this point and has received the proper amount of flocks upon its surface, it passes between pressure guide rollers e and e^1, and then into the path



of a flocking drum f, the latter being provided with a series of transverse beater bars f^1. Next the fabric passes over a series of staggered tension rollers, g, g^1 and g^2, to the next flocking drum f, or a series of such drums in the machine, as seen in the illustration, as well as over and under a series tension rolls, and between pressure mashing rolls located adjacent to the respective flocking drums of the machine, until after the fabric leaves the last in the series of flocking drums. It will be found that by the time the fabric has left the last series of flocking drums, it has thoroughly embedded in it the flocks applied thereto, by the same being (more or less) permanently packed into the meshes or body thereof.

When the last series of flocking drums f is passed, the thoroughly flocked fabric is then passed between pressure rolls h and h^1, the latter rolls being of different sizes, to smooth out or calender the surface of the fabric to a certain extent. The fabric passes then partly around tension roll i, and between the folder rolls j and j^1, which in turn fold the cloth onto platform p.

NOVELTIES FROM FOREIGN SOURCES.

Worsted Suiting.

Complete Weave.

Repeat 4×4.

Warp:—4220 ends, 12 or 16 harness straight draw.

Reed:—32×2=66 inches wide in loom.

Dress:—

1 end, 2/56's worsted, black and white 2 ends, 2/56's worsted, gray 1 end, 2/56's worsted, black and white	× 3=12	
1 end, 2/56's worsted, black and white 2 ends, 2/56's worsted, black 1 end, 2/56's worsted, black and white	× 6=44	× 4=144 ends
1 end, 2/56's worsted, black and white 2 ends, 2/56's worsted, gray 1 end, 2/56's worsted, black and white		× 3= 12 ends
1 end, 2/56's worsted, black and white		= 1 end
2 ends, 2/56's worsted, black		= 2 ends
1 end, 2/56's worsted, black and white		= 1 end
1 end, 2/56's worsted, black and white		= 1 end
1 end, 2/56's worsted, black		= 1 end
1 end, 2/56's worsted, black and green 2 ends, 2/56's worsted, black and white 1 end, 2/56's worsted, black 1 end, 2/56's worsted, black and red 2 ends, 2/56's worsted, black and white 1 end, 2/56's worsted, black		× 2= 16 ends
1 end, 2/56's worsted, black		= 1 end
1 end, 2/56's worsted, black and white		= 1 end

Repeat of pattern: 180 ends

Filling:—72 picks per inch, arranged thus:

1 pick, 2/56's worsted, slate and white 2 picks, 2/56's worsted, gray 1 pick, 2/56's worsted, slate and white	× 3=12	
1 pick, 2/56's worsted, slate and white 2 picks, 2/56's worsted, black 1 pick, 2/56's worsted, slate and white	× 8=32	× 2= 88 picks
1 pick, 2/56's worsted, slate and white 2 picks, 2/56's worsted, gray 1 pick, 2/56's worsted, slate and white		× 2= 8 picks
1 pick, 2/56's worsted, slate and white		= 1 pick
1 pick, 2/56's worsted, black and yellow 1 pick, 2/56's worsted, black 2 picks, 2/56's worsted, slate and white 1 pick, 2/56's worsted, black and green 1 pick, 2/56's worsted, black 2 picks, 2/56's worsted, slate and white		× 2= 16 picks
2 picks, 2/56's worsted, black		= 2 picks
2 picks, 2/56's worsted, slate and white		= 2 picks
2 picks, 2/56's worsted, black		= 2 picks
1 pick, 2/56's worsted, slate and white		= 1 pick

Repeat of pattern: 120 picks

Finish:— Worsted finish, 56 inches wide.

Woolen Melton Suiting.

Complete Weave. Repeat 2 × 2.

Warp:—2410 ends.

Reed:—18×2=67¾ inches wide in loom.

Dress:—

1 end, 2/36's worsted, red-brown 1 end, 2 ply 6 run woolen yarn, olive and white	× 2=	4 ends
1 end, 2/36's worsted, red-brown	=	1 end
1 end, single 3 run woolen yarn, slate 1 end, 2 ply 6 run woolen yarn, green and drab 1 end, 2 ply 6 run woolen yarn, olive and white	× 2= 6	
1 end, single 3 run woolen yarn, slate 1 end, single 3 run woolen yarn, olive 1 end, 2 ply 6 run woolen yarn, olive and white	× 2= 4	× 5= 60 ends
1 end, single 3 run woolen yarn, olive	= 1	
1 end, single 3 run woolen yarn, slate 1 end, 2 ply 6 run woolen yarn, green and drab 1 end, 2 ply 6 run woolen yarn, olive and white	× 2=	6 ends
1 end, single 3 run woolen yarn, slate	=	1 end

Repeat of pattern: 72 ends

Filling:—39 picks per inch, arranged thus:

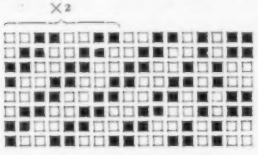
1 pick, 2/36's worsted, red-brown ..... = 1 pick
3 picks, single 3 run woolen yarn, black ..... = 3 picks
1 pick, 2/36's worsted, red-brown ..... = 1 pick
1 pick, 2 ply 6 run woolen yarn, black and white ..... } × 2 = 6
picks, 2 ply 6 run woolen yarn, black and gray ..... }
1 pick, 2 ply 6 run woolen yarn, black and white ..... = 1 } × 6 = 72 picks
5 picks, single 3 run woolen yarn, black ..... = 5
1 pick, 2 ply 6 run woolen yarn, black and white }
2 picks, 2 ply 6 run woolen yarn, black and gray } × 2 = 6 ends
1 pick, 2 ply 6 run woolen yarn, black and white ..... = 1 pick

Repeat of pattern: 84 picks

Finish:—Melton finish, scour well, full at the same time, shear, press and steam, finished width 56 inches wide.

Worsted Suiting.

Complete Weave. Repeat 25×4.



Warp:—3645 ends, 8 harness fancy draw.

Reed:—14 @ { 5 dents @ 4 ends, / 1 dent @ 5 ends, } = 65 in. wide in loom.

Dress:—

1 end, 2 fold twist of 2/60's black and gray ..... } × 2 = 4
1 end, 2/32's worsted, black ..... } × 3 = 24 ends
4 ends, 2/32's worsted, black .....
1 end, 2/32's worsted, black ..... = 1 end
1 end, 2 fold twist of 2/60's black and gray ..... } × 6 = 24 ends
3 ends, 2/32's worsted, black .....
7 ends, 2/32's worsted, black ..... = 7 ends
1 end, 2 fold twist of 2/60's black and gray ..... } × 5 = 10 ends
1 end, 2/32's worsted, black .....
9 ends, 2/32's worsted, black ..... = 9 ends
1 end, 2 fold twist of 2/60's black and gray ..... } × 6 = 24 ends
3 ends, 2/32's worsted, black .....
1 end, 2/32's worsted, black ..... = 1 end

Repeat of pattern: 100 ends

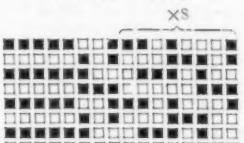
Filling:—54 picks per inch, arranged thus:

1 pick, 2 fold twist of 2/60's black and gray ..... } × 2 = 4
1 pick, 2/32's worsted, black ..... } × 3 = 24 picks
4 picks, 2/32's worsted, black .....
1 pick, 2 fold twist of 2/60's black and gray .....
1 pick, 2/32's worsted, black .....
1 pick, 2 fold twist of 2/60's black and gray .... } × 14 = 28 picks
1 pick, 2/32's worsted, black .....
6 picks, 2/32's worsted, black ..... = 6 picks
1 pick, 2 fold twist of 2/60's black and gray .... } × 5 = 10 picks
1 pick, 2/32's worsted, black .....
8 picks, 2/32's worsted, black ..... = 8 picks
1 pick, 2 fold twist of 2/60's black and gray .... } × 14 = 28 picks
1 pick, 2/32's worsted black ..... }

Repeat of pattern: 104 picks

Finish:—Worsted finish, 56 inches wide.

Worsted Tricot.



Complete Weave. Repeat 72×4.

Warp:—5815 ends, 10 harness fancy draw.

Reed:—21½ @ { 1 dent @ 5 ends, / 16 dents @ 4 ends, / 1 dent @ 3 ends, } = 67½ in. wide in loom.

Dress:—

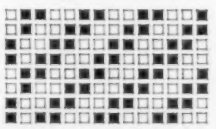
11 ends, 2/48's worsted, black ..... = 11 ends
2 ends, 2 fold 2/52's worsted, black and white twist ... = 2 ends
6 ends, 2/48's worsted, black ..... } × 2 = 16 ends
2 ends, 2/52's worsted, black and white twist...
6 ends, 2/48's worsted, black.....
2 ends, 2/52's worsted, black and white, twisted with 2/64's worsted, black ..... } × 3 = 24 ends
2 ends, 2/52's black and blue-green ..... = 2 ends
17 ends, 2/48's worsted, black ..... = 17 ends

Repeat of pattern: 72 ends

Filling:—75 picks per inch, all 2/40's plain worsted, black.

Finish:—Worsted finish, 56 inches wide.

Worsted Suiting.



Complete Weave. Repeat 14×4.

Warp:—3845 ends, 14 harness straight draw.

Reed:—20×3=64¼ inches wide in loom.

Dress:—

2 ends, 36's worsted, black, and 64's worsted, light gray, twist ..... = 2 ends
2 ends, 2/32's worsted, black ..... = 2 ends
1 end, 2/40's worsted, dark and light gray ..... } × 3 = 6 ends
1 end, 2/32's worsted, black .....
1 end, 2/40's worsted, dark gray and white ..... } × 2 = 4 ends
1 end, 2/32's worsted, black .....

Repeat of pattern: 14 ends

Filling:—55 picks per inch, arranged thus:

1 pick, 2/40's worsted, dark gray and white ..... } × 3 = 6 picks
1 pick, 2/32's worsted, black .....
1 pick, 2/40's worsted, dark and light gray ..... } × 3 = 6 picks
1 pick, 2/32's worsted, black .....

Repeat of pattern: 12 picks

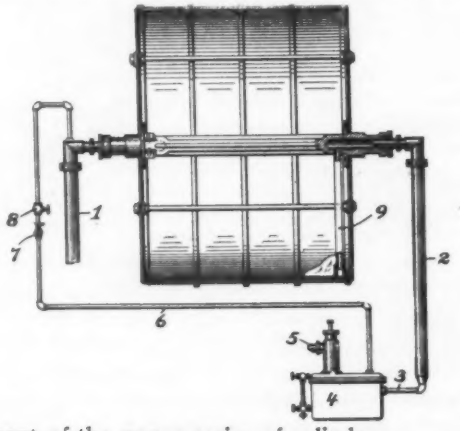
Finish:—Worsted finish, 56 inches wide.

MEANS FOR DISCHARGING FLUIDS FROM DRYING CYLINDERS,

forms the subject of a late invention in drying machinery by R. D. Tackaberry, of Lewiston, Maine; the same having for its object the expelling the air and the water of condensation from drying cylinders, at the same time maintaining uniform and equal pressures in the various sections of the drying machine. This feature Mr. Tackaberry attains by providing outlets from the cylinders extending to a steam trap, i. e., a pipe communicating between the steam space of the steam trap and the steam space of the drying cylinder, in order that the rushes of water passing into the trap from the cylinder are prevented from raising the pressure in the latter. This communicating pipe, thus re-

ferred to, is provided with a vent and stop valve for facilitating the initial removal of the air from the cylinders, and which air the steam in turn forces through said outlet-pipe into and through the trap out into the atmosphere.

Under ordinary conditions, a horizontal cylinder drying machine and to which class of drying machinery the present invention more particularly refers, is composed of a series of cylinders, ranging from 4 to 21 (or less) in number, they being generally placed so as to alternate, that is to say, that above the first two cylinders, placed in a straight line, there is a third cylinder which forms an equilateral triangle, with the preceding ones, and which constitutes the commencement of the upper series of cylinders.



In these cylinder drying machines the cloth in passing over the cylinders will be dried both by the contact of its face and back with the cylinders, i. e., the first cylinder the cloth comes in contact with works on one side of the cloth, the next cylinder on the other side of the cloth, and so on, until the cloth leaves the machine. However, in connection with some fabrics like raised face goods—quilts, corduroys, etc., and where contact of the face of the fabric which the cylinders would injure the former, a series of winces, or woodlagged cylinders, also called binding rollers, must be used, in this manner bringing one side of the fabric only in contact with the cylinders of the drying machine.

The accompanying illustration is a cross section through one of the cylinders, referring to one of the series of cylinders of a drying machine, is being revolubly mounted in a framing (not shown) having hollow parts. Steam supply pipes, 1, are arranged to pass into said hollow framing parts at one side of the machine, whereas air and water discharging pipes, 2, pass from the hollow framing parts at the other side, the interiors of the cylinders communicating with the hollow framing parts so that steam may be supplied to the cylinders and the air and water of condensation withdrawn.

Pipes, 2, run into an extension, 3, which conducts the air and water to the trap, 4, and from which the water is then discharged through the pipe, 5.

Passing from the top part or steam-space of the trap, 4, is an equalizing pipe, 6, communicating with the steam-space of the drying cylinder by running into the steam-feed pipe, 1, at a point directly adjacent to the hollow frame part previously referred to, so as to always equalize the pressures in the drying cylinders and trap. Pipe 6 is provided with an air vent cock, 7, and with a valve, 8.

The pipes, 2, have downwardly extending legs, 9, located in the cylinders, with scoops attached to their ends. These pipes revolve with the cylinder and gather the condensed water therefrom each time that the pipes reach a position extending downward from the axial shafts of the drums, a feature which causes the water to be expelled from the steam cylinder in pulsations or gushes which tend to bring about successive increases of pressure within the trap, thus disturbing the uniform operation of the dryer. To overcome this trouble is the object of the equalizing pipe, 6, which places the steam space of the trap in communication with the steam space of the drying cylinder, thus maintaining a uniform pressure within the drying cylinder and the trap.

HOW TO OPERATE THE NEW APPARATUS.

In order to first expel the air from the drying cylinders, the valve, 8, should be closed, the air-vent cock, 7, should be opened, and the valves of the pipes, 2, also opened. Steam is then admitted into the drying cylinder through the pipes, 1, causing air to be blown out through the pipes, 2, into

the trap, 4, and thence into the pipe, 6, and out of the vent-cock, 7. After all of the air has been expelled, steam will begin to escape from the vent-cock, 7, which then must be closed and the valve, 8, opened, after which the operation of the apparatus will become normal, the steam entering the cylinders by means of pipe 1, and the water of condensation being withdrawn from the cylinder through the pipe 2. When sufficient water accumulates in the trap, 4, the same is automatically expelled by the operation of the trap, as will be readily understood.

AN IMPROVED DYEING MACHINE.

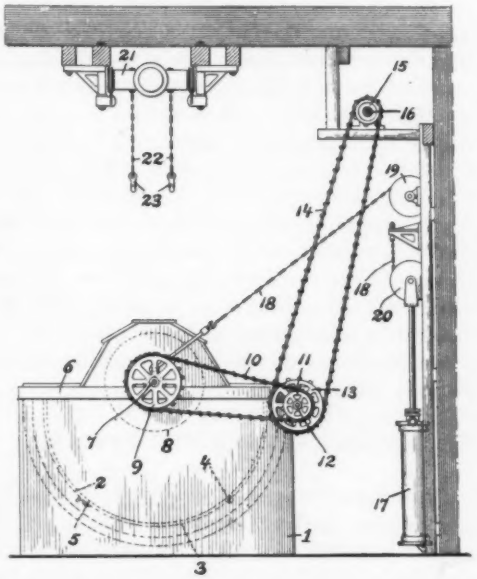
The advantages of this machine are that by means of it the articles under operation, not only are subjected to most thorough treatment in the tank, but that at the same time they can be readily removed from one tank to another, in order to subject the articles to the various treatments (different dye liquors, etc.), as the case may require.

The accompanying illustration shows this dyeing machine in its side elevation, showing also arrangement provided for raising the cover, also the traveling crane.

A description of this machine is best given by quoting numerals of references accompanying the illustration, and of which 1 indicates the tank, which is to contain the required dye liquor, 2 is a receptacle, semi-circular shaped and in cross section, into which the material to be dyed is deposited, said receptacle being provided with means to be lowered into or raised out of the tank 1. The top of this receptacle 2 is open, whereas its bottom is provided with a hinged section 3, the same being pivoted at 4, and held in place by means of bolt 5. This hinged section 3 is perforated, to permit the admission of the dye liquor when in the tank 1. On top of the tank is situated a cover 6, pivotally secured thereto at one end, and which cover can be swung upwardly on its pivot to a vertical position to permit the introduction and removal of the receptacle 2.

Journaled in bearings on the cover 6 is a shaft 7, which carries fastened to it an agitator 8 (shown by dotted circle), the same being of the ordinary paddle wheel type, its purpose being to agitate the dye liquor and material, thereby thoroughly subjecting the same to the action of the dyeing solution.

On the outside end of the shaft 7 is fast a sprocket wheel 9, which is connected by a chain 10 to a similar wheel 11, mounted on a shaft 12, forming the pivotal connection of the cover 6 within the tank 1. The shaft 12 is also provided with a sprocket wheel 13, which is driven by a chain 14 from a sprocket wheel 15, mounted on a driving shaft 16, to which power is applied in any convenient manner so as to rotate the agitator 8, and thereby agitate the dye liquor and the material as before mentioned.



Seventeen indicates a pneumatic cylinder, which, through chain 18 and pulleys 19 and 20, respectively, permits the raising of the cover 6, so that the receptacle 2 may be raised out of the tank 1, this being done by means of a traveling crane 21, which is provided with suitable mechanism for lowering or raising the chains 22 the lower ends of which have hooks 23, adapted to engage eyes on the respective sides of the receptacle 2.

The cover 6 may also be raised manually, but the mechanical method is to be preferred.

The operation of the machine is thus:

The articles to be dyed are placed in the receptacle 2, the cover 6 is then raised, and the receptacle 2 introduced into the tank 1, the dyeing solution in the tank 1 entering

the receptacle through its perforated bottom 3. This accomplished, the cover 6 is lowered, and power is applied to the drive shaft 16, which then through its connections rotates the agitator 8.

After the articles have been agitated in the dyeing solution for a required length of time, the power is then removed from the drive shaft 16, and the cover 6 is raised to a vertical position, thereby permitting the receptacle 2 to be raised out of the tank 1, during which operation the dyeing solution in the receptacle 2 drains through the perforations in the hinged bottom 3 back into the tank 1. Then by disengaging the bolt 5 from the hinged bottom 3 the latter may be opened and the dyed articles removed therefrom.

Provided this first process was only a preparatory procedure (mordanting, first dyeing, etc.), then the material is not removed from the receptacle, but the latter, as containing the thus treated material, is by means of the traveling crane 21 removed from one tank to another for a subsequent treatment there. A series of dyeing machines, as thus explained, may be arranged side by side, the material under operation being readily transferred from one to the other until the dyeing process is completed.

HEDDLE SEPARATING DEVICE.

In connection with drawing in warps by machinery, spacing devices are employed in connection with the harness, and which device engages the individual heddles of its respective harness, and in turn regularly spaces them (the heddles) apart so as to facilitate the automatic drawing-in operation of the warp by the machine. As will be readily understood, the application of these spacing devices to the heddles requires time, and consequently is a source of expense to the mill.

In order to be able to explain better the construction and application of this spacing device to the heddles on the harness frame, the accompanying two illustrations are given, and of which Fig. 1 is an elevation of an end portion of a loom harness, showing the heddle-separating device attached thereto, and provided also with the improved retaining, supporting and protecting device in operative position. The other illustration, Fig. 2, is a (somewhat enlarged compared to Fig. 1) sectional detail of the upper portion of a harness, showing the two devices previously referred to in connection with Fig. 1, in suitable position so as to protect the spacing device from injury during weaving.

With reference to numerals of references accompanying our illustrations, 1 indicates an end portion of the upper harness shaft, 2 an end portion of the lower harness shaft, 3 the individual heddles as strung to said harness shafts. Four is the spacing device for the heddles, the same being a helical coil of wire carrying one of the heddles 3 between

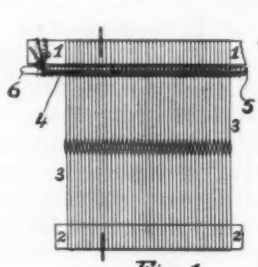


Fig. 1

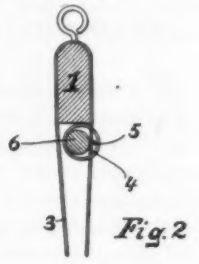


Fig. 2

each of its convolutions. Five indicates a flexible cord, it being the means used for retaining the heddles in the coil. Six is the supporting, and at the same time protecting device during weaving, for the heddle separating device, i. e., the helical coil of wire 4; it being a wooden rod somewhat smaller in size than the inner circumference of the coil of wire 4.

During a process of drawing-in the warp, the flexible cord 5 is drawn into the wire coil 4 as the shaft, of the drawing-in machine, which carries the heddle separating screw, is withdrawn. This retaining cord 5 remains in the harness and when the latter is to be removed from the warp drawing-in machine, the supporting rod 6 is then inserted within the wire coil 4 (see Fig. 2) and the whole raised up, close to the lower part of the upper harness shaft 1, and where then it is secured in place by passing the cord 5 around the rod 6 and the harness shaft 1, thus holding the coil 4 against any movement longitudinally of the heddles, at the same time drawing the device close to the lower portion of the harness shaft 1, and where it is supported and protected against any possible damage during weaving. The new device thus explained is the invention of the American Warp Drawing Machine Co., of Boston.

CORRESPONDENCE AND NOTES

Upon Textile Topics at Home and Abroad.

THE INTERNATIONAL COTTON CONGRESS

BY MR. ARTHUR Y. SCHOLFIELD, Manchester, Eng., in the Stretford Telegraph.

A REPLY TO THE AMERICAN DELEGATE.

We well remember the entrance during the first sitting of the above congress of one who received so hearty and genuine a welcome as falls to the lot of few. This gentleman was Mr. Samuel S. Dale, the American representative and the editor of the Textile World Record, published in Boston. On his return home he reported to a meeting of the New England Manufacturers' Association the results of his experiences, and the deductions to be drawn from the aims and aspirations of this memorable congress. This report has aroused the greatest interest throughout the English and Continental cotton trade, for as will be seen from the article itself, reproduced in our columns, it is characterized not only by the most conspicuous ability, but by a breadth of view and fairness of criticism which command our warmest admiration, and will, we are sure, receive the respectful attention of our readers. In taste and spirit it is admirable, and we fully enter into the sentiments of the writer, though we disagree with him on some matters, and therefore appears our reply of today.

Mr. Dale naturally reasons from the American standpoint, and has the most fervid belief in the greatness of his country and in the magnificent future awaiting its people. At the outset we may say at once we yield to no one in our respect for the American nation. From its geographical situation, its immense extent, and the great variety of its soil and climate, America is for practical purposes self-sustaining. That is to say, it produces nearly every one of the prime necessaries for man. Its people are energetic and intellectual, and in all that constitutes true strength are without rivals, for they could withstand the armed attacks of the whole world. Their literature is noble and humanizing, and in the realms of mechanical engineering and invention of late years they have been unequaled. Of what in this respect their genius has produced we have not been slow to avail ourselves, as so many now flourishing industries bear witness, for it is ordained that the great prosperity or creative capacity of one land is a lasting benefit to others less favorably endowed. But there are limits even to the greatness and resources of the Americans. There are bounds which they may not overstep, and no progress they make can ever be an injury or menace to others.

The chief objects in drawing together this great congress were to arrange for concerted European and English action in all crises in the cotton trade, particularly when caused by scarcity of raw material and consequently excessive prices, and to develop by all possible means the growing of suitable grades of cotton in various parts outside America. The views of Mr. Dale on the general aims of the association meetings in Manchester may be fairly summed up under these three or four heads. He believes that the true policy which would best provide for the raising of raw material lies in a thorough development of the Southern States, where the conditions are more favorable for the production of cheap and good cotton than elsewhere, and which must ever be the chief factor in determining the world's supply.

In the second place, he holds strongly the belief that the interests of American spinners and manufacturers through the operation of their tariff system are not identified with those of Europeans, and no good, he thinks, would result from an official combination, which would be injurious to those outside their manufacturing industries.

And thirdly, he hopes through the natural advantages possessed, that at no very distant day they may occupy the same commanding position in regard to the production of cotton goods as is theirs in the raising of cotton itself. In other words, America is to be the supreme manufacturer of this article for the rest of mankind.

Let us quietly examine the ideas thus advanced. There can be no possible doubt an abundance of raw material, no matter where it may be grown, is of the first importance to manufacturers and consumers, and the comparative failure of the cotton crop in 1903, and the ensuing dearness have claimed the attention of everyone on our side of the Atlantic. Calamities of this nature affect the livelihood of so many millions that we should be destitute of the most ordinary foresight and prudence if we used not our utmost endeavors to provide a remedy.

We admit the force of Mr. Dale's reasoning on the power of the Southern States to grow for an indefinite period enough cotton to supply the requirements of the world, nor does there exist any danger of hostile legislation, nor of a dreadful outbreak of war. Long ere our friend's article was written we had often expressed the opinion that America's ability to produce was limited only by the scarcity of labor. Of the vast areas in the cotton belt, scarce 30,000,000 acres are under cotton cultivation, considerably less than half the area of our own small islands. This acreage could be increased many fold, and no limit to the yield approximately fixed.

But the fact remains, we have more than once of late gone short, and it behooves us as wise people to look around elsewhere, and we should fail in our duty if we were not to encourage the growing of good cotton wherever practicable. We are well aware of the enormous difficulties in the way, and for many years progress will be slow, yet we must not forget all beginnings are hard, and obstacles should nerve us to succeed. What, we would ask Mr. Dale, has in our own life time transformed the wilderness of Western and Central America into fruitful and settled regions? Nothing save the determination and industry of the people.

One point raised by Mr. Dale we should like to touch upon, when he quotes Mons. Berger, the chairman of the French delegates, and draws from his words the inference that we on this side view with feelings akin to panic the rapid approach of the day when America will consume all her own cotton. We can assure Mr. Dale there are no such apprehensions here in England, and we write as people engaged ourselves in the industry, and in daily touch with the largest and most representative firms. This, indeed, could never be, for, as Mr. Dale says, the raw cotton passes to those who will give the most for it. Never was the outlook brighter than now. He is very firmly of opinion that cotton growing outside America will not pay commercially, and its output will be insignificant. This is a matter time alone can determine.

Referring to his disapproval of any common action between American and European spinners and manufacturers for the purpose of lowering the price of cotton, we are inclined to agree with him it would be very difficult of attainment, and on the whole do more harm than good. But we maintain the interests of both are in reality one, and the cheaper the raw materials are the better for producers and users alike.

He objects to any combined attempt to lower the value of an article American grown and says his countrymen can well afford to pay a large price for their commodities by means of their great tariffs.

He doubts, and we are largely of his opinion, the possibility of any conceivable combination radically to affect prices of a universal commodity, save under very exceptional circumstances. It is true last year by working organized short time, they were kept within bounds, but had we not so reduced the hours of labor, when May came there would not have been a bale left, and famine would have stalked through the land. But this is, after all, the remedy of despair. It cannot be permanently resorted to. The losses are incalculable and advantage is often taken by the selfish to run full time and reap a harvest through the sacrifice of others. Besides, it cripples the purchasing power of the masses. It would be impossible to arrange such action at the present time, when an enormous

demand exists. The price of cotton varies according to supply and demand. If it be scarce, its value augments, and even when abundant, if the forces controlling are of sufficient strength to hold back a large percentage, the price will still rule high.

In his judgment of the benefits derived from the tariff, Mr. Dale, we think, is essentially unsound. The same unerring economical law rules in America as well as here. It is not a matter of indifference to them the price they pay for their fabrics. The cheaper these become, the more within the reach of the people are they brought. The dearer one thing is, the less of others can they buy. The sole protection the Southern planter has is the excellence of the fibre he can put on the market. The cost of all his machinery and of everything he consumes is enormously enhanced by this tariff, and the same is true of the whole agricultural class. They have shielded from competition every imaginable trade, yet they have placed the burdens on the vast majority outside them, and which include the bulk of the American people.

They have secured for all intents and purposes their home trade, though they would have possessed this in any case; nothing could have prevented it, and we purpose demonstrating the same. The fear of foreign competition destroying the industries of the States we heard expressed everywhere during our travels and long residence in their midst. A more perfect bogey was never created in the mind of man. Other countries, and particularly ourselves, are in normal years so fully occupied that we could supply but an infinitesimal fraction of American needs if required, and for some time now have been unable to meet the demands of our regular customers.

In the concluding portion of his address, Mr. Dale expresses the hope that their manufacturers may, by attention and improved machinery, become the supreme producers for the whole cotton-consuming world. We write in no way sarcastically when we say there is a fine strain of poetic imagery in this alluring conception of an approaching universal supremacy—the contemplating of which we are loath to deprive him. It is, however, impossible to bring about for several reasons. Their protective tariff forbids competition with us in the neutral markets, save in special classes of goods, for which our looms are not adapted, and which we cannot afford to alter just now. Improvements in machinery would not avail; others would have them tomorrow.

We tell Mr. Dale that his can never be a great foreign trade nation, in proportion to population, so long as they remain almost self-sustaining, for the simple reason they do not require the productions of others like we, who have to import the bulk of the food we eat, and the raw materials we use. The neutral countries can only offer America a few luxuries, and their ordinary exports would be useless. There are such industries as fine spinning. Can America beat us here, with our moist climate? The answer we give is: She consumes 90 pounds of cotton per spindle per annum; we, with the best of everything, only 35 pounds, showing her to be engaged with the cheap coarse counts and us with the costlier fine.

Again, nature steps in, and, as we pointed out, prescribes a limit to human hopes and achievements, and Mr. Dale would range far beyond. Their own home demands are too imperious. We offer him an illustration. Here in England is an export trade of £350,000,000, yet the labor employed in producing every portion of this is but one-sixth of that used to manufacture articles which never go outside our borders. These represent a sum of over £2,000,000,000 sterling, and we supplement this by importing nearly £600,000,000 of food, goods and raw material. The difference between the American home and foreign trade will be still greater, and we should not be surprised if the former ranged from about £4,500,000,000 to £5,000,000,000 of our money.

So we see the bulk of the energies of any country must be used to supply primarily its own necessities, and any ambition towards absolute domination in the manufacture of an article which everybody uses may be relegated to the abode of pleasant and golden dreams. And in no case could we or any other nation be injured by anything sent to us, for all commerce is an exchange, directly or indirectly, of the good things of one part

of the world for those of another. If this exchange were not accepted, payment could not be made.

In conclusion, we thank Mr. Dale for his valuable paper. It will do infinite good, for it shows to us one of the many diverse standpoints from which human enterprise is regarded, and will do more to promote friendly understandings than many ambassadors, and, moreover, these discussions make clear the grand and consoling truth, that there is room on the earth for all who there dwell and labor.

THE CANADIAN WOOLEN INDUSTRY.

Topeka, Kansas, Nov. 11, 1905.

Editor Textile World Record:

I was glad to see Mr. Strand's letter in your October issue in reply to mine of August, regarding the Canadian woolen industry, and quite agree with him that he is entitled to his opinion, whether the information on which it is based was obtained at first hand or not. I have no hesitaion in saying that I believe Mr. Strand wrote what he conceived to be the truth, but a deeper research into the matter will, I feel assured, convince him that in scattering broadcast such ideas as stated in his June letter, he is doing an injustice to the Canadian manufacturers, who have for years been fighting for relief from an overwhelming flood of imported goods, and for a portion at least of their home market.

Your English correspondent cites the late Mr. Horsefall of Halifax, as a source of information. From that gentleman's name I have a fairly good idea of what plant he visited in Canada, and our Canadian friends in the woolen trade will also be able to read between the lines and will not be surprised that Mr. Horsefall went home to England with an erroneous impression of Canadian plants and equipment. Your correspondent admits the right of Canadians to impose such tariffs as they see fit, and that an unprotected Canadian woolen industry could not hope to live. But he still adheres with bulldog tenacity to the opinion that Canadians are for the most part incompetent, and their mills badly equipped. If he will take the trouble to investigate the matter carefully he will find that those "competent mills that can get along nicely under existing tariff arrangements" are mighty few and far between, and further that they have worsted plants attached and sell worsted yarns to knitters, thus partly severing them from the province of woolens. They remind one more than anything else of the last forlorn flies of summer that, with half frozen bodies and wobbly legs, are defying as long as possible the cold of winter, which will assuredly come and finish them off.

Knitting mills are doing well in Canada, and that no one wishes to deny, but for what reason? Those in a position to know will tell you that it is on account of the fact that with the possible exception of one or two well-known brands of underwear (such as the Wolsey), England does not manufacture knit goods suitable for the Canadian trade. This fact in itself is sufficient proof that it is the importation of foreign goods (mostly British) that is strangling the Canadian market in woven fabrics. As for the statement that British manufacturers and their dependents have no ulterior motives in thus periodically getting up a hullabaloo about Canadian incompetency and lack of equipment, that is enough to make those who have studied the question laugh, in the language of Bret Harte, "frequent and free." Fortunately for the woolen industry in the United States, Uncle Sam looks at matters in a different light.

CHARLES M. HEDDLE.

TEXTILES AND THE NEW GERMAN TARIFF.

BY AN IMPORTER.

One of the most important features of the tariff problem now being discussed between the United States and Germany is the position of the textile industries of both countries. In Germany that branch of manufactures (while occupying about one-tenth of the working population) does not seem to have made any general advance in its export trade during the last fifteen years. Some years ago Ernest L. Harris, consular agent at Eiben-

stock, reported to Washington that the total German exports of textiles in 1900 from his district amounted to $242,879, and alluded to the fact that the figure was about the same as that of ten years before. The recently issued German official returns for the calendar year of 1904 show that the textile and allied industries exported last year about 250 million dollars' worth of goods, in the following proportions:

	Exports.	Exported to United States.
Silks	$ 38,000,000	$ 6,000,000
Woolen goods	103,000,000	3,500,000
Cotton goods	95,000,000	14,000,000
Linen and jute goods	6,000,000	3,000,000
Dry goods, notions, etc.	10,000,000	2,500,000

These figures indicate just how much the American market is worth to German textile manufacturers.

With such a foreign trade in textiles (more than eight times the total amount of United States' exports in the same branch for the fiscal year, 1904) it might be expected that the home market was fully taken care of, but Germany imported in 1904 about 80 million dollars' worth of textiles, including yarns. These imports comprised:

	Imports.	Yarn.
Silks	$18,000,000	$ 9,000,000
Woolens	28,000,000	22,000,000
Cottons	26,000,000	17,000,000
Linens	6,000,000	5,000,000
Total	$78,000,000	$53,000,000

That these imports are possible is more or less explained by the ad valorem equivalents of the present specific duties as given in the latest official returns:

Silk yarn (schappe) and goods	9 per cent
Silk goods	1 "
Woolen yarn	1 "
Woolen goods	17 "
Cotton yarn	8 "
Cotton goods	14 "
Linen yarn and goods	6 "

While increased specific duties on finished goods will to some extent benefit the German weaving industry, their proportion to the value depends largely on the price of the articles in question. Without entering into a detailed consideration of the various textile schedules it is apparent from the disapproval which various lines of German industry have expressed as to the smallness of the favors shown to manufacturers (in comparison with the generous treatment of the agriculturists) that German manufacturers are not in line with the measure. While some advances have been made in the rates on other textile yarns, German cotton spinners regard with acute displeasure the reduction in duties on the lower numbers.

Roving and slubbing, bleached and unbleached, as well as wicks, will go in at a materially lower rate. On unbleached singles from No. 11 to No. 47 there is a cut varying from 20 to 50 per cent., according to the number. The higher numbers are progressively advanced until on yarns above No. 102 there is an advance of more than 60 per cent. On bleached singles there is a gradually diminishing reduction throughout the line up to No. 102 varying from 10 to 40 per cent. In two-fold yarns the latter principle has been employed both in bleached and unbleached. Russia and Switzerland have obtained certain preferences on special counts.

German imports of cotton yarn for 1904 were as follows:

	Pounds.	Value.
Belgium	1,337,828	$ 388,000
Switzerland	3,658,640	1,432,500
Great Britain	38,450,984	14,208,000
Other countries	3,332,448	679,500
Total	46,779,900	$16,708,000

The value of the cotton yarn on which duty was paid in 1904 was $16,037,250, and the amount of duty collected, $1,303,500, making an average of about 8 per cent.

While importing 17 million dollars' worth of cotton yarn at an average price of about 36 cents per pound, Germany shipped last year about 7 1/2 million dollars' worth of that product at an average price of about 30 cents per pound, Austria, Belgium and Holland taking about one-third of the quantity and the United States a little over $300,000 worth.

Germany is a relatively small outlet for American textile manufactures, the total shipments last year having been under half a million dollars as compared with 29 million dollars purchased from Germany by this country, and 25 millions imported by Germany from other nations. The trade from the United States comprised: Silk goods, $5,000, paying on the average about 9 per cent.; woolen goods, $25,000 (17 per cent.);

cotton goods, $170,000 (14 per cent.); manufactures of fibres $200,000 (6 per cent.)

Out of the 225 million dollars' worth in the aggregate sold by this country to Germany last year, about two-thirds consisted of raw materials on the German free list, and two-thirds of the remainder were dutiable food products, the advanced rates on which for the increased protection of German agriculture, with preferences to several other countries, have caused energetic protests from the American interests directly concerned.

Textiles shipped from Germany to the United States ($29,000,000) form about 40 per cent. of the manufactures imported from the former country; metal, chemical, ceramic and wood products together about equaling the amount represented by textiles.

Much will of course depend upon what concessions Germany asks in connection with the extending to this country of the preferences granted by recent treaties to Austria-Hungary, Belgium, Italy, Russia, Switzerland and Roumania, in view of the discontinuance of the "most favored nation" agreement.

According to some reports German manufacturers are not really so anxious for a reduction of rates as for the removal of vexatious customs regulations. Whatever comes of the impending discussion a clear understanding as to each other's grievances is one step toward their removal.

ENGLISH NOTES.

(By our Special Correspondent.)

The usual endeavors to depress wool values in Australia are being made by Bradford firms in this early part of the season and these are being counted in quite the usual way. There are no present appearances of a belief that wool will be substantially dearer, and dealings are for consumption rather than for speculation. Although demand is better, there is no justification for a marked increase of price and probably all interests will be best served by the maintenance of the general level now prevailing. Stocks of material are not heavy and the fact that arrivals are few is attributed to American buying. Judging from one side of the case only, it would seem that America may suffer from a plethora rather sooner than England.

In one respect the Boston, New York and Philadelphia wool markets seem hardly to take their share of an important duty. For aught one knows they may very energetically be educating the domestic wool-grower, but they appear to leave it to England—and England leaves it to Bradford—to inform and to guide the foreign producer of wool. One has referred previously to the cautionary letters against false packing and pollution by vegetable matter in wool sent to distant growers by the Bradford Chamber of Commerce. Australians need these admonitions less than South Africans, Russians and others that might be named. Probably joint protests by American and English buyers would carry more weight than those from Bradford alone. In matters which are for the common good, rivals may very well cooperate and when a grievance of magnitude is felt the American dealers might do worse than communicate with Frederick Hooper, Secretary of the Bradford Chamber, and a very courteous and willing servant of the wool trade. Supposing the grievance to be mutual, there need be little doubt that Bradford would strengthen Boston's hand and rely on Boston to do the same in parallel circumstances.

In spite of precautions, cases of anthrax or "wool-sorters' disease" are again prominent. One that has attracted general attention arose in the works of John Cure & Co., Bradford, from handling human hair. That this commodity has any textile uses may be news to some manufacturers. A few tons a year are brought to Bradford from China, chiefly plaited in the pig-tails. Marseilles is the chief European centre for coarse human hair and also for horse-hair. The normal price of human hair is 35 to 40 cents per pound.

Human hair is not used for dress goods or for anything else ornamental. Mixed with camel and other hairs it is spun into yarns for the hair-belting which is used extensively in the tropics and also for the mats used when oil is expressed mechanically from seeds.

Dolls' wigs may be made from the combings, but the material is such as the ordinary wig-maker or maker of ladies' hair-nets will reject. Dolls' hair, it may be remarked casually, is fabricated from crisp wool, the salvage from fires. Merino wool that has not been actually burned, though subjected to strong heat, smoke and steam, takes on the color as well as the curly character which is the admiration of the nursery.

After prolonged conference between operatives and manufacturers new regulations for the prevention of cases of anthrax have been formulated. Bales of Van mohair, Persian locks and Persian wools (including Karadi and Bagdad sorts) are to be steeped thoroughly in water before opening. Bales of Alpaca, Pelitan, East India cashmere, Russian and Peking camel-hair are only to be opened (after steeping or otherwise) over an efficient opening screen. The screen should have an area of 12 square feet and be subject to an exhaust draught with a velocity of not less than 100 feet per minute at all points within 18 inches of the grid's centre. All mohair other than Van mohair may be opened on a floor, but must be sorted on a grate provided with a downward draught. In opening rooms no other work is to be carried on and it is stipulated that the temperature of the air-currents shall be at least 50 deg. F. The sorting-boards or grates are to be of woven wire with a clear 3-inch space below. Below the centre of the screen a funnel of 10-inch diameter is to be fixed, conducting into an air and dust extraction shaft with a capacity of at least 75 cubic feet per minute at each sorting-board. The arrangement must allow for the sweeping directly into the funnel's mouth of all such dirt as is not whirled away upon the wind.

The exhaust draughts are not to lead directly into the open, but into receptacles properly constructed and the dust therefrom is to be removed and burned at least twice weekly. Boards, shafts and the space below boards must be cleaned weekly. Disinfectant solutions are to be sprinkled on the floors and the floors swept as soon as work finishes for the day. Tares are to be picked clean and not brushed; bits of skin and the like are to be removed daily; respirators are to be worn by the dust-collectors, and men's over-alls are not to be removed from the works without an over-night soaking in boiling water or disinfectant fluid. No clothes are to be left in the rooms for unwashed dangerous wools, and hands must be washed before eating or before departing. In no particular can the very precise regulations drawn up be thought excessive, in view of the deadly nature of the scourge. And if the rules are followed literally fatalities from anthrax ought to be diminished appreciably.

Life in the wool-combing sheds in Bradford has never been called a paradise and before now the operatives have been held up to public pity as "white slaves." Recent inquiries show the rates of wages to be regrettably low. Woolwashers on the day-turn receive from 21 s. to 28 s. ($5.04 to $6.72) and carders 18 s. to 26 s. ($4.32 to $6.24) for a week of 55 1/2 hours. Night men work three hours longer and are paid 20 s. to 23 s. ($4.80 to $5.52). The employment attracts a number of casual unskilled laborers, discharged soldiers, displaced operatives of all trades and some undesirables. Only those that have been engaged for some time and have acquired skill are paid more than the minimums named. Some authorities give the figure as more, but it is certain that a man, woman and child cannot exist healthily in industrial England on an income of less than 22 s. ($5.28) weekly. Therefore some of these payments are beneath the subsistence line.

Whatever its deficiencies in space and equipment, the municipal Technical College at Bradford becomes more and more a centre of light and leading. For $2.50 a course of twenty-four illustrated lectures on warping, dressing, weaving and designing may be taken, and for a similar sum twenty-four lectures by experts on preparing, combing and spinning wool. The demonstrations are of interest to anybody in the city's trade and are of particular value in broadening and deepening the views of the man who is all day in the mill. Then for half a dollar one may become a member of the Bradford Textile Society, meeting at the College, and listen to thirteen addresses, technical, polemical, speculative or practical. These

interest and inform the heads of the trade as well as students and outside learners.

Though the series are apart from instruction at the machines they go far to produce a more receptive and inventive type of man. Bradford is lucky in having expositors who can impart knowledge clearly, and has the initial advantage of a large population engaged in the worsted trade. The popular lecture is not the least useful engine of technical instruction, which of all branches of education is surely the best abused. "To acquire a skilled trade by school-methods," says an engineering paper, "appears almost as hopeless as trying to learn how to drive a motor-car by sitting in it as a passenger."

The recovery of fats from scouring processes is, at times, a profitable adjunct of the English woolen mill. For his profit the manufacturer has to depend on the market for black oil unless he is himself able to use the product, and this our makers of cheap woolens do, after blending the recovered oil with a suitable admixture. The crude suds are ordinarily run into tanks outside the mill. They are treated with sulphuric acid, thus provoking fermentation. The "magma" or grease rises to the surface in a cake and the now nearly clear effluent is run into a sewer or stream. The magma settles to the bottom and is cut into squares, put into canvas bags and hydraulically pressed hot at 400 to 500 pounds per square inch. Thus the more fluid constituent, or black oil, is expressed and is caught in other tanks. Its value is between $40 and $60 per ton. A residuum of cake remains, which possesses qualities as a fertilizer and is used by growers of hops. As fuel the residuum is reckoned to be nearly half as good, weight for weight, as coal is, and the cake is accordingly used for steam-raising by some mills. In varying degrees of impurity these greases are used for cart-axles, for soap, for cloth-oil and lubrication. When chemically purified the suds appear as the base of ointments and toilet luxuries.

Makers of insulated electric cables are good customers now for makers of common bleaching or printing cotton cloths. The trade in cotton yarn for insulating electric wire is of longer standing and is carried on in and about Derby principally. Cotton cloth is being requisitioned by makers of automobile tires and is being waterproofed by processes similar to that described on page 183 of the October issue of this journal. Perhaps the employment of cotton thread in the wax match industry needs no comment. Parenthetically, it may be said that the high price of cotton last year sent the wholesale quotation of wax-matches up by a fraction.

These details suggest the further information that job-lots of cotton, silk and worsted warp and yarn of little use to the mill are sold extensively to dealers that find customers for such oddments in the Levant. The presumption is that they are utilized to make some sort of Turkey carpets, mats, rugs or shawls. Hand or machine knotted rugs from woolen, worsted and fancy yarn make a minor industry which gives employment to people that know how to obtain material advantageously. One or two fortunes, even, have been made out of rag-rugs made from clippings bent through a canvas backing.

THE MANUFACTURE OF FANCY YARN.

BY JAMES AND CHARLES DANTZER.

(Continued from November.)

Fig. 23 illustrates knickerbocker yarn having two shades, 2 and 3, of pills. Fig. 24 shows a yarn having pills of only one shade. The distribution of the spots in knickerbocker yarn is always irregular. Thilliard has adopted the following method of producing knickerbocker effects: He uses narrow rings in one part and wider rings where he wishes to form the knickerbocker. By vibrating the finisher doffer spots of different colors are produced. He also uses doffers covered with rings which are raised in certain places; the higher part takes up more wool and the lower part less, which gives the irregularity desired. By running slivers of different colors into the card and vibrating the doffers, a similar effect can be obtained. He has also used doffer rings with the wire removed at intervals. The clothing is left only where spots in the yarn are desired, and over each ring a thread of spun yarn is run. As the doffer revolves the part of the ring covered with wire takes up the stock from the cylinder and delivers it in bunches to the thread, both of which

are incorporated in a continuous strand by the condenser, as shown at Fig. 25. The roving is spun on a ring frame or mule.

5. Ball yarn: This yarn was designed by Boureau and is sometimes called "yarn of the Orient." It is a very rare effect, produced by hand from a special textile material having some resemblance to cotton. The little balls scattered along the thread give an effect similar to that obtained by the use of silk noils. The manufacture of the yarn requires three operations:

FIG. 23.

(a) Making the balls: The cotton, preferably Indian, passes through an ordinary opener and beater. The slats in the beater are replaced by a cover. The cotton is delivered in greater or less quantity to the fluted feed rolls of the ordinary card by means of an endless apron. The space between the large and small rolls is regulated so that the delivery of the product may be greater than what is necessary for feeding the large cylinder, provided it is to be carded once. Under the doffer of the small cylinder is placed a box as wide as the card to receive the cotton. This operation is repeated twice. The cotton is then submitted to a felting process. For this process it is immersed for twenty-four hours in a solution of caustic alkali; the little pills contract during this treatment and become fairly solid. The stock is then dried and submitted to another passage through the card.

FIG. 24.

(b) The cotton is run through a lapper to obtain a lap for receiving the pills.

(c) The pills are then mixed in the desired quantity with the lap obtained by the second operation, and both are then wound into rolls, two of which are fed to the card, which delivers the stock to two drawing-off rolls. Each strand is delivered to a vibrating box. From this box the stock is carried to cans with or without twist, according to the size. The spinning can be done either on the mule or ring frame. Fig. 26 shows a yarn, 1, carrying pills, 3, reinforced by the very fine cotton binder thread, 2, which increases the strength of the yarn. Usually the yarn is submitted to another treatment in caustic alkali.

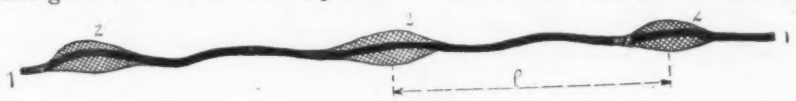


FIG. 25.

FIG. 26.

FIG. 27.

6. Pearl yarn: This yarn, designed by Rousseau & Co., is made as follows: The single yarn, 1, Fig. 27, is impregnated at intervals with drops of a pasty material which

hardens when exposed to the air. When it has become solid it forms bunches like pearls, and may be of any desired color.

NOVELTY TWIST YARNS.

These novelty yarns are produced by twisting single strands specially prepared for this purpose. Each of these single strands is designated by a different name according to the use which it serves. The *base* thread is that around which the *effect* thread is twisted. The *effect* threads bear different names according to the effect produced, such as *loop*, *knot*, etc. The *tie* thread is the one twisted around the base and the effect threads to prevent the latter from slipping on the former. Some fancy yarns are made without the tie thread. Sometimes more than three constituent threads are used and the others bear the names already given. Novelty yarns of this class are obtained by two different methods: Ply yarns with single threads of different colors; novel effects by twisting.

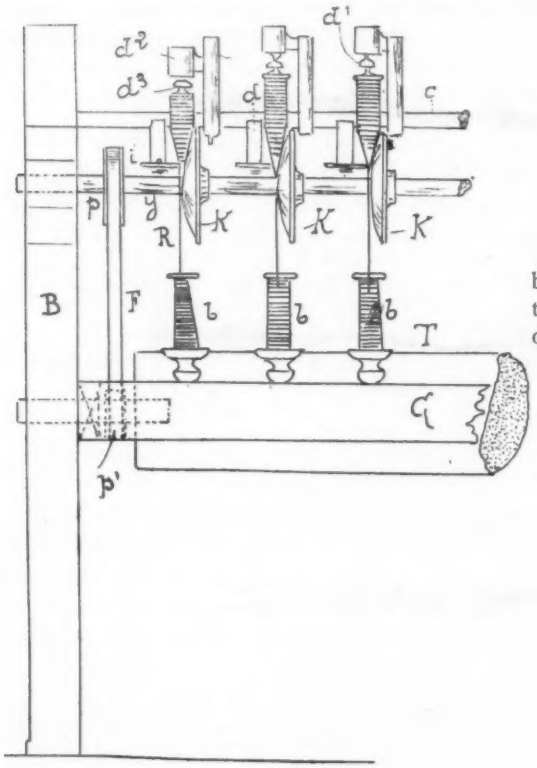


FIG. 28.

PLY YARNS WITH STRANDS OF DIFFERENT COLORS.

1. Tinsel yarn. This is obtained by twisting vegetable threads with metallic threads. Figs. 28, 20, 30 are different views of the Hacking twister used for this purpose. The drum, T, drives the spindle, b, by means of bands. The combined strands, R, pass over the bar, h, to the bobbin, d. This bobbin is driven by friction against a conical disk, K.

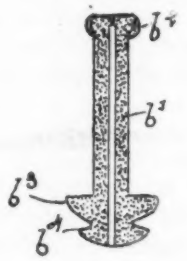


FIG. 30.

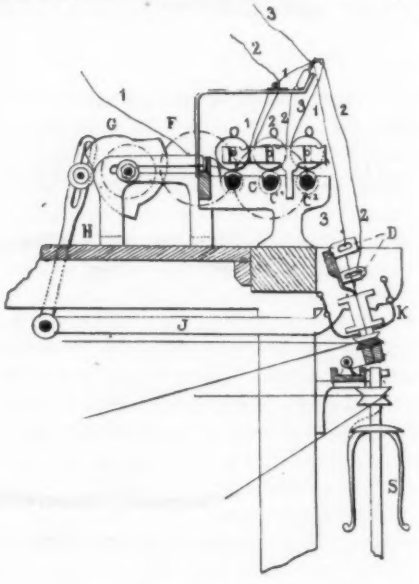


FIG. 31.

As the bobbin is filled with yarn it rises automatically and when full it is replaced with an empty one. The drum, T, is driven by the belt, F, from the shaft, y. The speed of the

shaft carrying the disks can be varied to suit different kinds of work.

2. Coated yarn. This comprises a base thread around which is wound one or more covering threads. Fig. 31 shows a twister

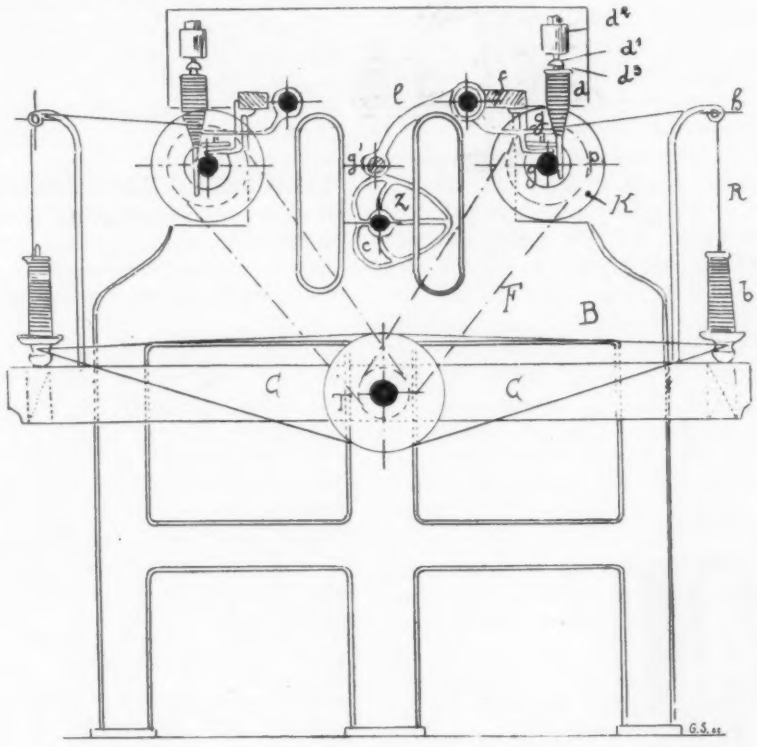


FIG. 29.

adapted for this kind of yarn. The base thread, 1, receives the guide threads, 2 and 3. All these threads are drawn from bobbins placed on a rack back of the machine and are carried separately to the rolls. The

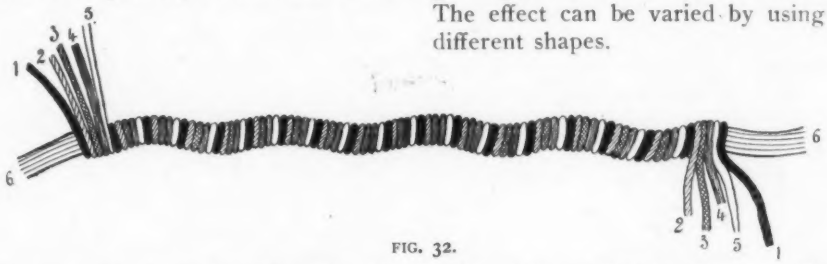


FIG. 32.

threads, 1, 2, 3, are twisted together by the flyer, S. Threads 2 and 3, after leaving their respective rollers, pass first through the eyelet, D, before being wound around the base thread. All the guides, d, are placed on a rail which is alternately raised and lowered by means of gears, F, and cam, G, and the levers, H, and J. When the guide follows the movement of the base thread, 1, the latter takes up the guiding threads, and the flyer, S, puts in the twist.

When the guide rises the supply of the guiding threads to the base thread is stopped. The effect can be varied by using cams of different shapes.

The Milan effect is shown at Fig. 32. A rather coarse cotton base thread (6) is entirely covered by a number of silk waste

threads, 1, 2, 3, 4, 5. This yarn is made on a twister, Fig. 33, having special spindles.

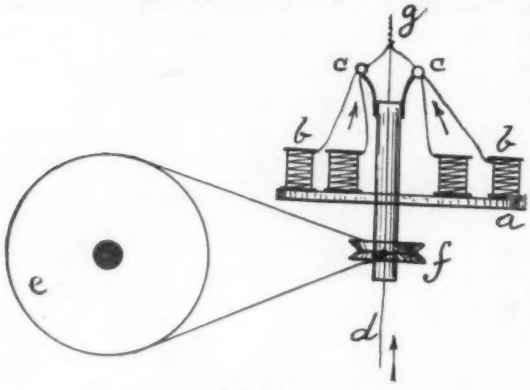


FIG. 33.

Each spindle carries a disk, a, which supports from six to ten iron pins carrying the silk

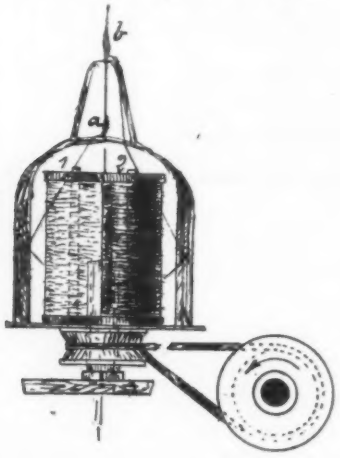


FIG. 34.

bobbins. The silk is drawn from these bobbins, b, passes over the guides, 1, and is

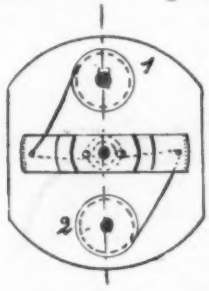


FIG. 35.

wound around the base thread, d. The finished thread is shown at (g). The spindle is driven by bands from the drum, e. The spindle is tubular in order to allow the base thread to pass through it. Figs. 34 and 35 show a variation by which the covered threads do not unite with the base thread at the same point. The thread from the bobbin, 1, passes to the base thread at (a), while that from the other bobbin, 2, unites with the base thread at (b).

(To be continued.)

HOW AND WHERE FASHIONS ARE CREATED.

BY PAUL MORAND.

(Bulletin des Soies et des Soieries de Lyon.)

What is fashion? How is it created? These questions have been asked many times of the best dressmakers and tailors of the Rue de la Paix; they have received only evasive replies when any have been returned. It is not easy to define fashion; to succeed requires the pen of a La Bruyere. The author of "Caracteres" devoted an entire chapter to fashion and omitted to give a definition. At least we can inquire of what it consists and how it originates. Is it subject to general laws and rules like most of the ordinary emotions of human nature? Many manufacturers who are constantly striving to keep up with the latest developments of fashion have great interest in correct replies to these questions in order to avoid useless effort and expense, as well as heavy losses, due to the misconception of what the trend of fashion is.

The word itself indicates the absence of all general rules; fashion is chance, nearly always a product of caprice. It favors some manufacturers and inflicts heavy loss on others. Some, better inspired, find their fortunes in creating novelties which answer the taste of the hour; others, less fortunate, see their product neglected and at times often depreciated. Fashion has no rules; it is not only "undulating and diverse," to use the language of Montaigne, but it is constantly changing. "One fashion destroys another," La Bruyere tells us, "and it is displaced by a new one, which gives way in turn to another which will not be the last."

Fashion is not taste for that which is good

or beautiful, but for that which is new, rare and original. It is the image of our inconstancy, the product of our desire for change; at times it is simply whimsical. As soon as it sees the light of day, no matter how bizarre it may be, all hurry to imitate the new fashion and submit to its power. In the sixteenth century these vagaries were thus described by Montaigne: "The present fashion in clothing consists of a constant condemnation of the old style, with a resolution so strong and a consent so general that it seems to be a sort of mania which turns the understanding upside down." Most moralists pretend to see nothing in fashion but an indication of our fickleness. There is, however, a weakness in avoiding fashion as well as in following it.

Where are its places of origin? They are diverse and at times mysterious. Fashion may arise from the caprice of one of its devotees who takes a notion to clothe himself in some unusual manner in order to lead in a new style; at other times it may be the inspiration of some fashionable tailor who combines form and shade in harmonious arrangement. Those who create new fashions often do so unconsciously, following a passing idea or a remark heard in the street. Nevertheless, it is left to a few leading tailors to lead in this respect. Fashion has been called the elder daughter of good taste and that is often true, although at times the product of bad taste enjoys great popularity.

Fashion may originate in the theatre or a source may be found in historical memories. Thus the drama of "Madame Sans-Gene" or "Madame la Marechale," filled with allusions to the first empire, resulted in a revival of the costumes worn at that time. At another time it may be an actress who brings a new shade or a new cut upon the scene. The fashion thus launched becomes general for a time, thanks to that spirit of imitation which leads the village woman to clothe herself like her sisters in the city. Sometimes a new product which seems to have no relation to such and such an article or appears even to be destined to compete with it, serves on the contrary to bring the latter into style. Thus the appearance of artificial silk, far from competing with natural silk, has contributed to an increase in the popularity of brilliant silk effects, which of late years have been neglected in favor of a dull finish.

It is incontestable that the evolution of manners and customs exercises an important influence upon fashion. Clothing is so intimately connected with social habits that one can almost say it is the exterior sign of culture. The evolution of style is a consequence of the evolution of manners. In our day automobiling has restored furs to favor.

There is no place in the world where fashion is followed at all where it is not known that style comes directly from Paris. Paris is the empire of fashion because it is the empire of good taste. It is necessary to recognize that the innovations in fashion find at Paris the most favorable conditions for their adoption. The atmosphere of Paris favors the development of novelties which are sought for in vain elsewhere. It is in Paris that the models are created and from Paris that all the cities of the world obtain their fabrics and costumes which please the taste of mankind. The Paris tailors wield the sceptre of taste and creative imagination. Thanks to the purity of this taste and the results of this imagination, thanks also to their indefatigable efforts, they maintain their superiority and make all foreign countries tributary to them. It is in vain that the American tailors try by means of dollars to deprive us of our best workers, hoping to transplant to the United States that which they call the "chic Parisien." Our workers once established in America retain only for a time the ability due to the Paris atmosphere. For some time past foreigners seem to have given up the struggle. At the beginning of every season they come to buy and copy our models, thus demonstrating that France remains the land of good taste and elegance. While we may be ignorant of how fashion is created, everyone knows where it is created and from what point it starts in its conquest of the world.

In the Aachen district of Germany the yearly wage for weavers averaged $205 in 1894, $230 in 1899 and $240 in 1904.

Questions and Answers.

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Size of Roving.

Editor Textile World Record:

Where can I get information relating to the size of roving for the different counts of yarn and slubbing? I understand there are some printed tables for this purpose, but have been unable to find them.
Purchase (599).

We have no tables giving the size of the roving for the different counts of yarn; in fact, such a table would be of very little value as the draft varies so greatly on different kinds of stock.

Ramie.

Editor Textile World Record:

Can you give me any suggestions in regard to working ramie with a rather coarse grade of cross bred wool. Could it be used successfully in making 2-ply yarn like sample enclosed, and what proportion could be used. Ashton (594).

Ramie stock has been mixed with wool for producing peculiarly striking mixed effects in piece dyes, the wool stock being colored and the ramie remaining uncolored. Very good results have been obtained in this way and it has been possible to use both white and colored ramie in the raw stock for mixing. We do not know, however, that ramie has ever been mixed with wool in such large proportions as Ashton evidently has in mind. There is a great deal of exaggeration in regard to the capabilities of ramie, but there are many difficulties connected with working it, although its application is being gradually extended.

Dyeing Black on Cotton Yarn.

Editor Textile World Record:

In dyeing black on cotton yarn with direct dyes, which gives the more even results, common salt or Glauber's salt, also which exhausts the bath the more? Rex (592).

Very good results may be had with either common or Glauber's salt. Either will make the dye go on evenly when the yarn is properly worked and common salt has the advantage of being somewhat cheaper. As to which exhausts the bath more, I will say that neither exhausts it. To dye cotton yarn black with direct dyes in an economical and practical manner, the proper results are obtained only by keeping a standing bath which saves from 30 to 50 per cent. over the first kettle or dyeing. Baumwolle.

Cloth Construction.

Editor Textile World Record:

Enclosed are two samples of cloth marked 1 and 2. How are these goods made? I want to manufacture them, but have had no experience on this class of goods. Malone (602).

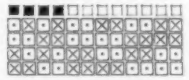
The samples are what are known as cotton worsteds and are different styles of the same fabric. An analysis of No. 1 gives the following results:

Weight, 17.2 oz. per yard, 55 inches wide.

Warp, 42 threads per inch, single 11.4 cotton, and 21 threads per inch 2/12 black and drab twist.

Filling, 41 threads per inch cotton and shoddy, 2.3 runs.

Weave draft:



■ = twist. □ = single cotton.

The sizes given are as the yarn lies in the finished goods; to calculate the spun sizes allowance must be made for shrinkage in length and loss in weight. As cotton yarn shrinks but slightly in finishing, practically the whole loss is due to the shrinkage of the filling yarn. Estimating the loss of weight in the filling at 17 per cent., and a shrinkage of 15 1/2 per cent. in length in the filling, with the goods woven 65 inches in the loom for 55 inches finished width, the spun sizes of the filling are calculated as follows:

2.3 × .83 (100—17) = 1.91.

1.91 ÷ .845 (100 — 15 1/2) = 2 1/4 runs, spun size of filling.

We judge the filling contains about 30 per cent. of shoddy, which gives a woolly appearance on the face of the goods and removes the bare cottony look which they would otherwise have.

Fabrics like the one under consideration are very popular at present owing to the trend of fashion toward worsted effects, and the construction illustrates the great possibilities of manufacturing cotton goods for men's wear. Sample No. 2 belongs to the same class as Sample No. 1, and both are shown in the accompanying illustration. In weaving these goods the single cotton yarn may be woven two threads in a heddle if desired.

Bleaching in the North and in the South.

Editor Textile World Record:

Why does not the development of bleaching in the South keep pace with the growth of the cotton manufacturing industry in that section?

Ashton (603).

There are many reasons why bleaching has not been done so successfully in the South as in the North, and one of them is that the Northern bleacheries are usually managed by men that have had years of experience; in many instances the bleachery has been owned and controlled by the same family for several generations, as the Sayles Bleacheries, at Saylesville, R. I. The South offers no special inducement to men experienced in this line of work; the wages are lower and the schools are inferior.

Another reason is that the bleacheries in the North have a large capital and are well equipped for the business, some concerns handling over one hundred tons per day. As the profits are small on each yard or pound, they make money on the large output. Again bleacheries in the North are built where there is plenty of good, soft water containing no suspended matter or minerals. Good water for bleaching is not always obtainable in the South. Many of the rivers contain suspended matter and the water is colored more or less, which makes it unsuitable for bleaching purposes.

There is no reason why bleaching in the South cannot be made as successful as it is in the North. and no doubt it will eventually.

Dunloe.

Shrinkage of Cotton Vestings.

Editor Textile World Record:

In the manufacture of cotton vests I find that the wearer has a great deal of trouble with some goods on account of shrinking. Is there a machine or process by which the vesting and the lining may be shrunk before they are made up and still have the material retain its original appearance? Of the samples enclosed, Nos. 2 and 3 are used for the vest proper; No. 1 is used for the vest lining. I have always had complaints from Nos. 1 and 2, while No. 3 has only occasionally been brought to my notice, but as the latter is lined with No. 1 the shrinkage may be caused by the lining.

Wabash (600).

The samples marked 1 and 2 are finished by what is called the elastic finish; that is, they are tentered goods. The sample marked 3 is finished on an ordinary mangle and drying cans. This is a stock finish, which accounts for its not shrinking. In bleaching and finishing, goods shrink in width and gain in length, the shrinkage being greatest in sheer goods, such as muslins and laces. Formerly the goods were stretched back to their original width by manual labor, by holding the selvages and pulling the cloth backward and forward while it was drying in highly heated apartments. An Englishman, Ridgeway Bridson, was the first to introduce a machine to supplement hand labor. It consisted of two horizontal rails or frames that extended side by side the length of the machine, carrying at each end a large wheel or pulley with small pins fixed at equal distances in its periphery. These pins passed through corresponding holes in an endless band, which passed around the pulley. On the surface of the endless band were fastened very fine needles or tenter points to hold the selvages of the fabric as it passed through the machine. The horizontal rails could be moved from each other laterally so as to stretch the fabric lengthways.

The rails were the same length as the fabric to be treated, which was fastened by the selvages at one end to the centre pins, and the pulleys being set in motion the entire piece was carried on and stretched over the machine and the rails were then moved outward to widen the fabric. The tentering machine, although now vastly improved, is the same in principle as that Mr. Bridson invented about the middle of the last century.

Goods that are starched and tentered hold their width until they come in contact with water, then their elasticity is gone and they naturally shrink to the width they were before being tentered. To make the goods represented by samples 1 and 2 non-shrinkable, it would be necessary to wash off the finish and refinish like sample 3. The goods would lose in width, but would gain in length.

Wabash's idea that the shrinkage of No. 3 is caused by the lining is correct. The finish on sample 3 is non-shrinkable. The tentering machine is the cause of much trouble to the commission bleacher and finisher. Before sending the goods to the bleacher the converter will have the goods tentered in the grey state and expect to have the goods bleached and finished and returned to him the same width and length that he sent. If the bleacher is fortunate enough to do this, then the troubles of the garment maker begin.

Old Practical Bleacher.

If Wabash had given a little more information regarding the shrinking of vesting I should have been better able to get at the cause of the trouble. He does not mention the width of the goods before or after finishing, or the amount of shrinkage abstracted from the fabric. There is no information of the process or system used; nothing but the trouble he is having. In regard to sample No. 1, used for lining, I do not see why there should be

much trouble with that, though various things will cause shrinkage, underbleaching the goods being one of them. If they are not thoroughly bleached the goods will not absorb the starch in the process of finishing and the oil left in the fabric will prevent the shrinkage that would otherwise occur. In my opinion a little heavier lining would be more suitable for this quality of vesting. To reduce the shrinkage in No. 1 cloth I would recommend the following composition for starching: To three gallons of water add half a pound of alum; dissolve and use from three quarts to one gallon for each 60 gallons of starch mixture. Add more or less according to the required consistency of the starch. This will help to shrink the goods in the wet state and will have no effect on their regular finish. Another expedient is to put a number of tension bars in front of a sprinkler machine, then gear it up to a quick speed and pass the goods through.

The No. 2 cloths are for vests proper; two are fancy weaves and one is plain. There is always more difficulty in shrinking fancy goods than plain ones. Following is another process that will help to shrink them and also give a thick feel: Steep 50 pounds of Irish moss in 15 gallons of water. Dissolve 225 pounds chloride of magnesium and add 75 pounds of glucose. Strain the liquor from the moss and mix the three together, to be used in quantities of one-half to four gallons for each 100 gallons of the starch mixture, according to the required consistency of the starch. The heavier the starch, the more composition.

After starching the goods let them lay for a couple of hours so they will absorb the composition; then dry quickly, having a good tension in front of the drying cylinder.

We once had the same trouble here, but I think if a manufacturer will watch the goods in process he will be able to find out whether there is the right percentage of shrinkage in the goods.

Dulcimer.

In order to study the question, I tested the samples for shrinkage by marking on each a rectangle of uniform size, and as large as the smallest sample would accommodate. I then soaked them in hot water, let them dry flat, but without any stretching. After re-measuring them, the shrinking was repeated, and they were again measured.

Samples 1 and 2 acted about alike, giving a total shrinkage each ranging from 5 per cent. to 9 per cent. along the warp, and from 0 to 2 per cent. along the filling.

Sample 3 acted differently, giving a total shrinkage of but 2 1/2 per cent. along the warp, but of 7 per cent. along the filling. Now it can readily be seen that shrinkage of a vest up and down would be much more of a misfortune to a man than the shrinking of it in girth, as a strap and buckle adjustment is usually provided. No doubt the manufacturer would receive more complaints from the goods acting in the former than in the latter way, which seems to explain his experience.

In finishing the goods, 1 and 2, it seems to me that they should be subjected to very slight tension along the warp, and be given only what tension is absolutely necessary across the cloth. The ordinary tenter has no way of regulating the tension along the goods; when the first end of the cloth is seized by the clips, a yard of cloth is fed on behind for each yard of chain. The cloth cannot shrink lengthwise because the chain will not allow it to contract. The longer the tenter, the worse it is. I was quite interested in a similar proposition at one time, and devised a way of feeding the cloth to the tenter so that it would be allowed to contract lengthwise, but this device is not on the market.

The best thing to do, where a tenter must be used, to give a uniform finished width, is to use a very short one, having before it a set of dry cans, or better, a set of cells built by the Vacuum Process Co., 15 State St., Boston, Mass. The cloth should be run through the dryer rather slack and should then go on the tenter. The cloth is fairly well dried and more or less shrunk before it reaches the tenter chain, and the short tenter will not interfere very much, as after the preliminary drying there will not be much tendency to shrink. If it is not essential to give the finished cloth an absolutely even width, the whole drying could be done on cells. The appearance of the goods would, I think, be entirely satisfactory. The cloth can be run through as slack, or under as slight a tension as may be found desirable.

Bolton.

I see no way that these goods could be shrunk without destroying the finish and making the cloth look raw. Samples No. 1 and No. 2 give most trouble because of the difference in the firmness of the cloths. No. 2 is a very firm cloth with the tendency to shrink almost entirely in the warp; No. 1 will shrink a good deal in the filling, but on drying and ironing can be easily stretched out even beyond its original width. Nos. 1 and 3 look better together because the two cloths are nearer alike in construction. To remedy the shrinkage I would suggest that a firmer cloth be chosen for the lining and that the goods be not stretched in the finishing process.

Tech.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 232 to 253. Also Buyers' Index.

KNIT GOODS SITUATION.

Knit underwear for immediate delivery continues to be a very scarce commodity, notwithstanding the fact that it is getting late in the season and that, as a rule, manufacturers are well caught up with their orders. This season has been an unusually active one and stocks in both jobbers' and retailers' hands are low, and the heavy demand for goods at retail counters has caused a very busy month for the manufacturers. This is not alone true of men's fleeces, but also of boy's and children's goods and also all lines of flat wool goods. About the only line that is at all plentiful is ladies' ribbed goods.

The past two weeks have shown a falling off on spring business, and as usual, not much more is looked for in this line until after January first. Prices on nearly all lines up to $2.00 have been advanced from 2 1/2 per cent. to 7 1/2 per cent. by manufacturers when duplicates have been called for; on men's low priced balbriggan goods, the advance has been considerably more. The goods that were sold early at $1.85 and $1.90 are now being held at $2.10 and only late deliveries are promised at that.

The situation on next fall's lines is what is engaging the attention of manufacturers, agents and buyers just now. The season may be said to be opened and yet only partially so, for at this writing there are only a few lines of 25-cent ribbed goods and men's 39-cent and 50-cent fleeces shown, manufacturers preferring to hold back until after the government cotton report appears.

Usually at this time the particular topic is the prices of the above mentioned lines, but this year manufacturers are waiting so as to be obliged to make their sales only once and buyers are giving all their attention to ladies' combed yarn goods and to wool and worsted lines. Conditions are unsettled by the fluctuation of raw materials and agents are not in a position to name prices with any degree of certainty. It is said that the few salesmen that went out and showed standard fleeces and ribbed goods at $3.50 were notified to advance them to $3.62 1/2 after the ginner's report came out. Another reason for the holding back of men's fleeced goods is that practically all manufacturers are behind in shipment of this season's goods and many buyers are complaining bitterly of the treatment they have received, consequently, if the salesmen should go out today, they would not be very cordially received by the buyers that have lost business because of the failure of manufacturers to deliver goods according to their contracts.

The Avalon Knitwear Co. have sold up their entire production at last year's prices and it is understood that they have agreed to deliver the same qualities of cotton and worsted goods as last year. They are erecting a new mill in which they expect to make a line of combination suits, and their representative is now out soliciting business on same. They expect to make a range of prices from $7.00 up to $30.00.

The Campbell Knitting Mill Co.'s representative is now in the West and reports a very large business so far. He states this is one of the few mills that made good delivery this year, and it is expected that their line will be withdrawn at an early date. They are offering 8-pound fine stitch combed yarn goods at $3.50 to $3.62 1/2, according to the trimming. Also a line of tuck stitch at the same prices, and ladies' union suits at $3.87 1/2, $6.00 and $7.00. They are also very successful on a line of misses' union suits at $3.75.

The Fuld & Hatch Knitting Co. offer their entire line only through Sutton & Co. this season. They make the same priced goods as they did last year in worsted, although the percentage or quality of the worsted has been cut into in order to fit the prices to the present basis of yarn costs. It is stated that two manufacturers have discontinued making children's worsted ribbed goods and this

leaves Fuld & Hatch Knitting Co. practically the only manufacturers in the field on this class of children's goods. They have sold up their entire production on men's 12-pound cotton ribbed goods at $3.75, and are now out of the market on this line.

It is reported that the Blood Knitting Co. have also sold up on the same class of goods at $3.62 1/2. These people make a line of 12-pound cotton ribbed goods in tan, blue, salmon and Egyptian in both tuck and fine stitches with collarette neck and satin fronts on the shirt and enjoy a splendid reputation on this class of merchandise.

The Morris Mills withdrew from sale their entire line of goods on November 18th, a remarkably early date for this concern to be out of the market. Their principal business was taken on wool ribbed goods and plush backs and they also sold up one of their mill's productions on men's two thread cotton ribbed goods at $3.67 1/2.

The Oneita Knitting Co. have withdrawn their line of union suits from the commission merchants, and are now selling their entire production direct from the mill. Mr. Charles Mann, their representative, has taken Mr. Walter Stainton as his assistant, and they are now in the West with the line. Their men's fleeced goods are being sold at $3.50 for goods, weighing 13 pounds on size 42. Their boy's combination suits are being offered at 12 1/2c. per dozen advance over the price of this year. Their line of ladies' combination suits has been greatly strengthened by the addition of a number of fine stitch lines and they are meeting the popular demand and making all their numbers to open down the front, as well as across the chest.

The Lewis Knitting Co. of Sauquoit, N. Y., are showing a children's straight ribbed cotton garment, weighing 4 pounds on size 28 at 25c. rise 25c., less 12 1/2 per cent. Those weighing 4 1/2 pounds on size 28 at 50c. rise 25c. less 15 per cent. and a line weighing 5 1/2 pounds on size 28 at 75c., rise 25c., rise 17 1/2 per cent. These are made in peeler and silver grey. They are also showing a line of combed yarn goods in ecru, peeler and silver grey with silk galoon binding at $1.00 for 16 rise 25c. less 10 per cent., and it is understood that some large orders have been placed on this line.

O'Loughlin Bros., of Cohoes, have started a new mill and are showing a line of ladies' ribbed goods to the jobber with the idea that they will be taken to compete with a certain well known hand finished line that goes to the retailer through one or two channels. They are making both 6-pound and 8-pound ladies' peeler ribbed garments with hand trimming at $3.67 1/2 for ordinary sizes and $3.92 1/2 for extra sizes. The goods are made from a specially prepared yarn, which makes an elastic fabric, and it is predicted that there will be no difficulty in selling this mill up at an early date.

HOSIERY.

Practically all lines of wool, worsted, merino and cashmere hose for 1906 have been opened and a considerable volume of business has so far been taken. Remarkable is the word best suited to describe the goods that have been produced to take the place of last year's numbers in the face of advances on the price of raw stock that should make a difference from 10 per cent. to 25 per cent. in the goods. Substitute numbers are being shown that look to be within 5 per cent. of this year's values, and in some instances it is hard to see any difference at all. It is possible that some manufacturers are taking long chances on a drop in prices of raw materials and are quoting prices that are not warranted by today's quotation.

To produce cashmere and worsted goods in the same quality that reached the retailer this year as a 25-cent garment would necessitate advances of about 25 per cent. Some manufacturers are showing the same goods as last year at advances of about 5 per cent., but buyers are passing them and taking the substitute numbers at the more popular prices.

Some of the means taken to get the goods out to fit the prices are to make them two to four ounces lighter in weight, using a lower grade of worsted and less of it, putting the goods up in dozen boxes and putting in merino heels, toes and tops. To produce goods with any worsted in at $1.85 or under has been a tough proposition for manufacturers and some of them have been baffled by it. To make men's merino half hose to get to

the retailer for 15 cents has also been a tough proposition and some manufacturers have done so by using the so-called fake wool. This is made of cotton spun on wool machinery and this yarn is being used extensively in making the low grade men's half hose at from $1.00 to $1.15.

One line of bundle half hose that was made last season to weigh 3 1/4 to 3 1/2 pounds and sold at $1.85 regular is now being offered at $1.75 net and examination shows that the goods contain the same percentage of wool stock, but it is of a lower grade and the weight has been reduced to about 3 pounds, so that there is actually an advance of about 15 per cent. on this line.

An all wool lumberman's sock weighing 6 pounds that sold at $3.35 regular last year does not appear in the line for the coming fall, but in its stead is a 4 1/2-pound sock of poorer quality at $3.35 net. This shows an advance of about 25 per cent.

Some good values that were shown early in worsted and cashmere lines have already been withdrawn from sale and it is understood that sales so far among several manufacturers have been 25 per cent. to 30 per cent. higher on the basis of the sales for the same period last year.

The lines that were delivered most promptly and nearest to original samples are getting the best of the business for 1906.

A few lines of cotton fleeced hose at $1.05 or under have not as yet been opened, but enough have been shown to indicate that the best prices will be an advance of about 5 per cent. over lowest prices of last season.

From a writing in 1641 we find that "a worsted was wrought with four treadles; to make thereof a bustian is to weave with three of the same treadles; to make it single is to use the two left-foot treadles; to make this a philiselle, a peropus, a paragon or a buffyn is but to alter the breadth and to make them double, treble or single in the stricken; and to make this buffyn a catalowne is to twist a thread of one colour with a thread of another colour and strike it with another colour; and to make the same a pearl of beauty is to make it striped, by colours in the warp, and tufted in the striken."

THE CONVENTION OF HOSIERY MANUFACTURERS.

An event of unusual interest in hosiery circles was the meeting in Philadelphia on November 14th and 15th. There were present nearly one hundred manufacturers of hosiery in response to a call sent out by the officers of what was formerly the Southern Association of Hosiery Manufacturers, but reorganized and rechristened as the National Association of Hosiery Manufacturers. The idea of broadening the scope and increasing the attendance and interest in the meetings by making a national organization and holding meetings at a central point like Philadelphia, proved a good one.

The efforts of the promoters of the convention were ably assisted by a reception committee, composed not only of members of the hosiery trade, but machine builders, supply dealers and others having to do with the mill trade, through whose efforts an entertainment and expense fund of about $800 was raised and expended in the social features of the convention.

From a social standpoint, the chief event was the smoker concert given in the hall of the Manufacturers' Club on Tuesday evening. An attractive vaudeville had been arranged by the committee, which furnished several hours' entertainment, at the conclusion of which a collation was served in the supper room upstairs. At the smoker and supper there was a very large gathering of people connected with the trade. On Wednesday afternoon the entertainment committee arranged automobile rides around the city, which many took advantage of to their pleasure.

The headquarters were at the Continental Hotel in Philadelphia. The meetings were held there and at the Manufacturers' Club on Walnut St. On Monday evening the manufacturers and their friends began to gather in the lobbies of the hotel. On Wednesday about eleven o'clock the open session of the convention was called to order by President Harold Lamb, who welcomed those present. A feature of this meeting was the address of welcome in behalf of the city of Philadelphia by Mayor Weaver, who received a most en-

thusiastic welcome, and afterwards held an informal reception. President Lamb responded to the address of welcome, and then introduced Walter P. McClure of the National Automatic Knitter Company, who read a paper on The Ethical Relationship as it should Exist Between Producer, Manufacturer and Distributer. A paper on the same subject was then read by W. F. Duffy, the treasurer of the Mayo Knitting Machine and Needle Company, which was the subject of much favorable comment.

Brief remarks were made by others called upon by the speaker.

President Lamb's Address.

Is there a manufacturer of hosiery here present who has not been the victim of trade abuses? If none, then woe to him who refuses to do his part in the upbuilding of our association. It behooves us to demand nothing but what is based on absolute fairness, but having sanctioned that demand let us condemn not lightly the member who departs therefrom, let us treat him as a parasite poisoning the life blood of the parent trade.

How many of us nine months ago, having their output sold at remunerative prices, with yarns purchased at a much higher valuation than then ruling, received from some of their customers a letter about as follows: "You are doubtless aware that many hosiery manufacturers have rebated their customers down to the market. We trust you will therefore conform to what other manufacturers are doing." Having no means of discrediting this statement we bowed the knee. In the particular kind of goods we were then making, our principal competitors could have been counted on the fingers of our two hands. Had we been banded together what easier than a resolve to resist this unjust demand, and being united left them absolutely no excuse for cancellation. This demand cost us just $4,500.

How many of you have sold your goods 2 per cent. in 10 days, and at the expiration of 40 days received a remittance less the 2 per cent.? I imagine a good many of you, as about nine out of every ten of our new customers try this dodge on us. The return of the check, however, always brings stamps for the difference.

How many of you pay expressage on samples because you think other manufacturers do it? I don't and you needn't either: all needed is a little ramrod down our back with a little "stand together" sentiment to place it in position. Do you realize that the care and expense, together with the cost of the floss with silk at $6 per pound makes your cost three times the cost of the expressage, that is, unless your customers demand an immense number of sets for each case purchased, which, in a little while, will mean that we will become sample manufacturers, incidentally manufacturing some hosiery for the trade in dull seasons.

Now I contend that none of us take these expenses into consideration in putting our prices on our goods, and that we submit to it because we think others do. If we could but receive assurance of the support of our brother manufacturer, and with that ramrod tickling our spinal column and thrilling our entire system with a feeling of ecstasy, let's agree to place the following on our order blanks:

"We Pay No Expressage on Samples."

"We Positively Will Not Allow Any Additional Dating or Discount Not on This Order."

"This Sale is Not Subject to Cancellation or Rebate."

This will avoid any misunderstanding and will put us so clearly in the right, if deviated from by the purchaser at time of remitting, as to render his position untenable.

We should send a list of those cancelling our goods unjustly to our secretary-treasurer, and when he receives several cancellations from the same party each member should be acquainted with the fact. This would brand this pirate with so unsavory a reputation that in a little while he would cease to be a factor. I believe that this class of short horn cattle are really responsible for most of our misdeeds and for which we should be most severely censured. Knowing that in a normal year through ignorance, we are going to be preyed upon by these sharpers, we sell full production feeling that the loss of production sustained through various causes will be offset by cancellations from these people. A year like the present finds us subjecting the upright purchaser to partial non-deliveries of our contracts with him because the pirate doesn't cancel. The "moral suasion" contained in the knowledge by these pirates of the adoption of such a plan will place a restraining hand upon their cancellations, to our great benefit.

Address of Secretary-Treasurer Carter.

A report of my stewardship as secretary-treasurer of the National Association of Hosiery Manufacturers must of necessity harmonize with my tenure of office. Having only been connected with the association since last July, my report will be brief, but I shall ask your very careful consideration of suggestions for future work.

We must fully understand the fact that our association is yet in its infancy. It must be as carefully nurtured, as faithfully watched and trained as an infant itself. You must consider the fact that our "baby" is a very precious one and susceptible of rapid and permanent growth. It's going to become a model child, because of the fact that we have the experience of so many successful trade organizations from which to pattern. We shall sift the work and efforts of these other associations, throwing out the weak, unstable and trouble-giving features and adhering to those principles which from past experience have proven beyond a doubt to possess satisfaction and permanency.

I desire to take this opportunity to convey to you as forcibly as possible the importance of organization work. Both in a general way and specifically you should feel that it is not only desirable, but absolutely necessary that every possible influence for good which the association is capable of exerting should be fully developed. To accomplish this result, it has reached the point

where every symptom must be analyzed, and where trouble is found special treatment should be prescribed and the patient placed in the proper hands in order that it may be carefully watched and every unfavorable tendency checked in its incipiency.

Favorable conditions should be nurtured and such treatment applied as will develop the same in every possible way. For the hosiery manufacturer to succeed, or even exist, his business must be healthy. By health we mean that the goods which are manufactured should be profit-bearing; in other words, there should not be too large a proportion of staples—upon which little or no profit is made—to what are termed satisfying lines. Of course, we do not claim that it is possible at all times for all lines to be sold at a satisfactory profit, but we do claim that unless the proportion of these unprofitable goods is much in the minority that the business will become unhealthy. An unhealthy person or unhealthy business cannot hold their own against the troubles that confront them. In fact, there is no such thing as holding your own or breaking even. If there is no gain in health or no profit, then there must be deterioration or loss, and under such conditions it will be impossible to stop the retrograde movement. If the manufacturer does not possess the nerve to ask and obtain a remunerative profit upon his product, or is unable to secure such results through co-operation of his fellow manufacturers, then there is little, if any, hope for a continuance of the business.

We have many serious problems confronting us, but I venture the positive prediction that all obstacles will be overcome if we will all get down to work on this proposition with the same push and energy we exercise in our own business interests, and with the unity of purpose and absence of personal or petty grievances, which often mar or prevent more cordial relationship with our brother manufacturers in everyday business intercourse.

Ethical Relationship Between Producer, Manufacturer and Distributer.

BY W. P. McCLURE, Philadelphia.

The subject upon which I have been requested to open the discussion, "Ethical Relationship as It Should Exist Between Producer, Manufacturer and Distributer," is certainly not in my line, unless I should be classed as a producer. Hence, I can hardly understand why your president has selected me to talk on this subject, unless it might be a desire to let me out early in the game. I beg to warn him that I shall still be in evidence and may have something to say on more congenial subjects later. Ethics, as concerned with what is good, or what ought to be good, or a benefit to the trade in general, includes the duties, morals and manner of trade with each other, as producer, manufacturer and distributer—the proper or improper manner of treating those with whom we are dealing.

We know that all business men should treat their fellows according to the highest and best code of morals, and we should make it our aim and duty to treat those with whom we are dealing in our most pleasant way and most agreeable manner. I have heard it said that manner is a happy way of doing things, and that cheerful manners make important wireless connection with the hearts of prospective customers and transmit an irresistible call for business. Taking confidence as the basis of all business, it appears to me that the first and most important step is to establish full confidence. Establish relations of such a nature that we can honestly and sincerely discuss the many abuses of the trade and methods to correct the same, knowing that all agreements reached will be honestly carried out by all.

In this business world of ours we cannot accomplish much by saying beautiful things. In our business relations we must be honest and honorable. If we can reach such a high standard with any degree of success we will certainly solve the question of ethical relations as they should be established between producers, manufacturers and distributers.

Ethical Relationship.

BY W. F. DUFFY, Franklin Falls, N. H.

The subject which we are discussing appeals to me as being so very broad and comprehensive that I feel as though my mental capacity was nearly absorbed by endeavoring to come to a correct understanding of its meaning, and I find myself in about the same predicament as was the man who once plied a small boat on the Mississippi River. In his attempt to ape his companions, who had larger boats, he equipped his boat with such a large whistle that in blowing it he was obliged to stop his paddle wheel.

From the standpoint of the machine builder, we can but merely touch this important subject, yet the subject as applied to us is an apt one, and there never was a more fitting time than now to discuss it.

In this great age of machinery, when machinery of whatever nature it may be is asked to do more and more every day and is looked upon to solve many of the perplexing difficulties which you gentlemen have to contend with, the highest responsibility which rests upon the machine builder should be not what specific thing or things can his machine do, but how well can it do what it is designed to do. This contention does not need to be amplified before you gentlemen who for years hence have placed your capital and the very foundation of your business into the hands of those who build your machinery. No one can say either now or hereafter that the art of building knitting machinery has reached its culmination, but the progress made in the art during the past few years, as well as the demands which are now coming from hosiery manufacturers, go to show that it is perfection to the very minutest details which rests as the heaviest responsibility upon the machine builder of today.

MACHINERY BUILDER AND MANUFACTURER.

There are continually coming to you new demands made by the trade, and to accomplish them you sometimes have to turn to the machine builder to help you. Here the machine builder must not only exercise his foresight to design and construct

a machine for years of service as the present requirements seem to call for, but he must be quick and alert to adapt his machine to the new and unlooked for exigencies which you will have to meet, and thus make it possible for you to proceed along successfully with the evolution of the hosiery business rather than be hampered thereby.

In these days of sharp competition in textile manufacturing the attitude of the machine builder toward the expansion of textile manufacturing has come to be a far-reaching one, particularly in reference to the manufacture of hosiery. In the early days of any branch of textile manufacturing, and when the machinery allied to it is in its infancy, the machine builder, as a partial promoter to create a confidence in a relatively new business as well as to establish a practical standard for his own product, does a vast amount of good to all concerned. On the other hand, when the time has arrived for the textile end of the chain of allied industries to take on a normal and healthy growth, as it now seems such a time has arrived in hosiery manufacturing, it ill becomes the machine builder to make effort to stimulate a growth which is a menace to the wholesomeness of the manufactories now straining every nerve to carry on their business successfully in accordance with legitimate business methods and to gain the prosperity which should be theirs. Substantial development and untrammeled growth without the blight of inflation should lie before you and others who may wish to embark in the same business.

Aside from these particulars which I have mentioned, viz., the perfection of his product, the constructing of a machine for tomorrow as well as for today, the freedom of approach to turn his theories to the greatest practical use, and his care for the right kind of a growth in the allied industry, the machine builder should extend his interests still further, and lend a helping hand to the promotion of just such ideas as you are endeavoring to set in motion by your assembling together here today. For my own part I heartily rejoice in the efforts you are making for an organization to nourish and sustain the growth of your industries, and I sincerely trust that your coming here today will mean the effective organization of all hosiery manufacturers upon a broad and solid foundation for the advancement for those large interests which have to do with the steady and profitable development of all your industries.

Benefits to be Derived through a National Association.

BY CHAS. CHIPMAN, Hosiery Manufacturer, Easton, Pa

Since the enactment of tariff laws which were so beautifully and manfully fathered by that sainted and beloved martyr, McKinley, the knit goods business has had comparatively smooth sailing as far as pauper-made goods, undervaluations, and so-called reciprocity are concerned, and we have every assurance that the future will be well cared for while we have such noble men as Theodore Roosevelt, who has made speeches in every State in the Union, behind our government.

Local organizations have only to deal with minor details, while a national body has prerogatives that should interest and benefit this and kindred industries. Take Standard Oil, the keynote of which is harmony all over the world.

Unpaid telegrams, freight allowances to New York, express charges deducted, discounts, terms, illegitimate claims for damages to goods in transportation, cancellations, shortages, etc., can only be regulated by mutual agreement as members of a national association. Let our coming together permeate this whole body by legislation, asserting our rights against those who are determined to use the country's resources corruptly, adjusting our wrongs, and by thus adopting good rules and principles, command the respect and admiration of our customers, who are usually men of high character and good business principles, except, perhaps, a very small percentage of them, and thus check those evils by suppressing any antagonisms toward all whom it may concern.

Allow me to suggest the appointment of a committee to inquire into the best methods for consolidating our purchases of supplies, as in the united pottery industries. Also a committee to report on means and methods for placing our merchandise upon the market, reducing expenses of same, etc., and perhaps they can recommend a plan whereby the number of salesmen can be reduced, poor, unreliable men eliminated, and fewer representative houses needed in New York and other cities. Stop increasing production.

Referring to the question of salesmen, some action should be taken whereby these men should adhere to strict business principles, have lots of backbone, and be able to say "no" when unreasonable demands are made. We are willing to admit that customers have claims worthy of consideration and respect, and should extend to them every courtesy and lead them to feel that our interests are mutual, working together on the principle of live and let live. And we should remember that our customers are entitled to a respectful hearing as regards non-deliveries or any unfulfilment of contracts, while, on the other hand, the habit of canceling orders indiscriminately by some houses must cease if they expect to receive fair treatment at our hands.

Where concessions can be made to a customer without any pecuniary loss, it is often a good policy to concede the same. But when an unprincipled salesman finds he has lost a customer's advance orders for certain numbers, and calls on the house in the middle of the season and quotes a price below anything offered to his other customers who have reposed confidence in him and placed their orders in his hands; and this unprincipled salesman enters into an arrangement with the unreasonable buyer, whereby the house establishes a bad record among manufacturers by canceling the balance of the unfilled orders and insisting upon the same, notwithstanding the fact that the goods are in the manufacturer's warehouse, put up under special stamping, bands, boxes and labels, independent of the fact that interest on the capital invested on these goods has been running several months—here, gentlemen, is one of our most serious grievances and should command our undivided and careful attention.

When cotton advances we are expected to fill our orders; when cotton declines, allowances are

demanded or cancellations follow if not conceded. Furthermore, some action should be taken condemning the unlawful manipulation of prices on cotton by stock gamblers, whereby the whole textile industry is injured, employes thrown out of work, great pecuniary loss entailed upon manufacturers, and in some instances their business ruined.

I would also suggest consolidating our selling agents.

Selling.

BY HOWELL E. BEAN, Hosiery Buyer, Philadelphia.

I am sure that the word "selling" and the selling of the product of your mills is a very important factor of your business. To my mind there has been very little attention paid to this particular department of your business. It is just as important that you should have a thorough organization over your selling department as it is that you should have a thorough and practical organization over your producing department. The question, from all the data that has been given to me by your committee, seems to be as to what manner you should sell your goods, whether you should sell them through the commission house, or whether you should sell them direct to the retailer, or whether you should sell them direct to the consumer. Those questions to my mind are best judged by the manufacturer himself—whether it is better for him to sell his goods on the old system by sending his goods to the warehouse and drawing advances on them, and then when the end of the season comes and he finds, if he has been selling upon a falling market, he has hardly capital enough left to continue his business the next year. However, that is a matter that has its advantages as well as its disadvantages. Just at the present time I should say it was of great advantage to the manufacturer who has a large output to have the goods commissioned. He can then lean upon somebody for his finances without the excessive charges of the present day in banking circles.

To my mind the best manner of distributing your goods is through the wholesale houses from one end of the country to the other. I do not think you could possibly have your goods better represented than by placing your merchandise in a wholesale house. If you have one representative on the road, he can accompiish but so much work in a day's time. If your goods are in the wholesale house, they have numerous representatives who are continually plying their vocation in order to secure orders for their firm. The question may arise: "Well, my goods are not shown exclusively for the trade." That is possibly true, but if the merchandise that you manufacture is up to date, is correct and is right, that is the merchandise that will be selected by the retailer.

As to selling your goods to the consumer, that is a question that is best determined by the manufacturer. All of those methods have their expensive and extravagant ways connected with them. Not long since a prominent merchant was called upon to act as receiver for a large corporation, which practically got into difficulties, and wound up its affairs. Upon an investigation of the books he discovered that it cost them 25 per cent. to sell their goods direct to the retail trade, for that was the system on which they conducted their business. The best evidence that I have that you should distribute your goods through the wholesale market is to point to the successful manufacturers of today. I have in my mind an organization that has a capacity of $160,000 per month, and there is not a retail customer upon their books, directly or indirectly. I have in mind another organization that has an output of over $2,000,000 of hosiery, and it has not a retailer upon its books, either directly or indirectly. I could go on naming many others (the largest producers of hosiery, particularly in this section of the country) who confine themselves strictly to the wholesale outlet.

I think one of the main points in selling goods is to have them right in the first place, before they leave the mill. There is certainly one quality in regard to merchandise, and that is, if it is made properly it will sell, and if it gets into a consumer's hands he will certainly come back and ask for that particular article again. A great deal depends in selling your merchandise upon the manner in which it is constructed.

There are many gentlemen I see here today that I know, who have been fortunate and prosperous in the hosiery business. I think they can attribute that to the fact that they devoted their energies, their time and ability to producing articles that had merit, worth and value.

Suggestions for the Remedy of Trade Evils.

BY J. H. McPHAIL, Nashville, Tenn.

I am perhaps one of the youngest in experience, although not in age, in the manufacture of hosiery, but I have learned enough in the short time that I have been in it to find that there is something lacking. We need to do something to correct the evils that we find in the hosiery business. Now, one way to accomplish this purpose is by organization. If we can get a perfect organization, or as nearly perfect as it is possible to get a human organization, as near an automatic machine as possible, then we might hope to produce results that will be beneficial to us all. An association simply coming together here, signing a constitution and by-laws, passing a few general resolutions, talking ethics, voting unanimously for the resolutions, then going home and unanimously disregarding them, is the way we usually run an association of manufacturers. But if we will think about this thing, if we will come together and talk, and not be afraid to give expression to the ideas we may have revolving in our minds, we may accomplish something. I believe we can, and I hope, Mr. President, that everyone here, no matter if he cannot say but one word or two words, will get up and say, "No, I don't believe that can be done," or "I believe it should be done this way, and that thus and so should be done." I hope that every man here that feels an interest in this movement will get up on his feet during this convention, and see if we cannot evolve something that will redound to our benefit as manufacturers of hosiery.

Now, gentlemen, what can we do to better our situation? First, we must have a good, strong organization. While, Mr. President, it may be a

"pipe dream," I am going to make a suggestion. I believe that if you will all think of it today and tomorrow, it may result in some action being taken looking to the formation of the company I propose. Of course, we cannot fix the prices on each other's goods; conditions are not alike, we do not make goods just alike, but I believe it is possible to form a selling organization that can handle the entire output of the members of the association, and eliminate to a great extent the competition where we are fighting one against the other. I suggest that a company be chartered for the purpose of marketing the goods of members of the association, with headquarters, say, in New York, and that one share of stock be issued to each member of the association. Then let that organization take the product and market it. The dividends accruing would be apportioned in proportion to the amount of goods each man had furnished—each concern had furnished. To illustrate: If I furnish $50,000 worth of goods, and you furnished $100,000 worth, you would be entitled to just twice as much of the profits of the association as I would. In that way you would be conducting your own selling department, with this difference: you would have an organization, a first-class organization, placing your goods with the best people at a less cost that you could do it. We will say the value of the hosiery products of the United States is $5,000,000. One per cent. of $5,000,000 would be $50,000. Can you sell your goods for one per cent.?

That is not the only thing. You would eliminate, to a great extent, competition. You would eliminate many trade impositions—the great number of samples you have to furnish, expressage on samples, reclamations, false claims, and all those things. An organization of that kind would act as one man. Instead of five hundred manufacturers competing against each other, there would be no competition. I would not advocate the raising of prices because you could do it; I would rather advocate the lowering of your prices to the very lowest point; instead of raising the prices, cheapen your goods. Where I make twelve numbers now, let me make one; let some other mill make another number—one number—and in that way we would increase our production, I believe, ten per cent. with the same force. We would make our goods better, because our people would work on the one thing all the time, year in and year out.

There are many other advantages that might come if the proposition was carefully and practically worked out. We could have the advantage of contracting for our supplies. The selling organization could be the buying organization. In that way we could reduce our cost of manufacturing and improve our goods.

There is no doubt, gentlemen, that if we earnestly desire to co-operate, this can be accomplished. And if this association ever does any good, it will be along these lines. You all are aware that competition is growing fiercer and fiercer every year. The buyer is learning more and more about your business every year, the traveling man is instructing him, he knows almost as much about your business as you do yourself, and he can figure your costs for you.

The sessions of Tuesday afternoon, Wednesday forenoon and Wednesday evening were executive, at which none but hosiery manufacturers were admitted. The attendance varied from fifty to seventy-five at the different meetings and the discussions of trade abuses were free and somewhat spicy. Manufacturers knowing that their remarks would not be reported, gave full vent to the expression of their feelings, and there was a good deal of difference of opinion as to the methods of overcoming trade abuses. All agreed that much should be done toward the improvement of conditions. Some were in favor of a close and binding agreement among the members with penalties for forfeiture of conditions. It was generally recognized, however, that the many different conditions arising from the variety of goods made, selling arrangements and many other matters, made it impossible for any general agreement to be made which would govern all branches of the industry.

Resolutions were adopted and the secretary-treasurer will endeavor to carry the purpose of these resolutions into effect, and more definitely outline the details. Subcommittees were appointed for the different classes of goods manufactured, but it cannot be said that these committees accomplished much or the inspection of samples proved very successful. Very few manufacturers brought samples.

At these meetings there was a very free and interesting discussion of trade matters, and a number of those present entered into a gentlemen's agreement to respond fully and freely to requests for information regarding prices, terms, etc., in which their lines were quoted.

Several important changes in the constitution and by-laws were adopted. There was a good deal of discussion on this subject, and some objections raised. The article covering the eligibility to membership and dues was amended to the following:—

AMENDMENTS ADOPTED.

Article 3.—Membership. Sec. 2. Any firm or corporation engaged in the manufacture of hosiery in such a manner as in the opinion of the Executive Committee would constitute the concern a legitimate manufacturer of hosiery, upon application to the secretary in writing and a four-fifths vote of the Executive Committee, may become a member of this association upon subscribing to

the constitution and by-laws and payment of $10 initiation fee. Sec. 3. The amount of annual dues shall be $25 per annum, payable on admission to membership, and thereafter within 30 days after each annual convention. Sec. 5. Any one presenting application for membership to this association at any time after an annual meeting, shall pay, in addition to the regular initiation fee, his pro rata of the annual dues for the unexpired portion of the fiscal year. Sec. 6. Any one presenting application previous to January 1, 1906, shall be exempt from paying the initiation fee of $10.

An amendment contains new provision that the executive committee shall be elected as follows: Two for a term of one year, one of whom shall be a southern manufacturer, and the other a northern manufacturer. Two for a term of two years and to be elected in the same way, and for that the term of office is to be two years.

The annual meetings are to be held in Philadelphia in May.

The most important resolution passed relative to the remedy of trade evils was the following:—

"Resolved, That any action taken at any meeting of the association in regard to methods of doing business or reforms to be inaugurated, shall be operated as follows: Upon the passage of any resolution implying or requiring the co-operation and support of the hosiery manufacturers, a card shall be mailed by the secretary to each member of the association, advising them of action taken and asking their acceptance of invitation to co-operate. If approved, they to sign and return pledge to the secretary for his files. By such action they give their word of honor as gentlemen that they will religiously adhere in full spirit and intention to the restrictions set forth. Pledge may be withdrawn upon 30 days' notice to the secretary in writing; otherwise to remain in full force and effect, unless the arrangement is terminated by official action of the Executive Committee, notice of which shall be sent through the secretary."

At the final session on Wednesday evening held at the Continental Hotel, the election of officers was held with the following result:

President, Harold Lamb, Union Mfg. Co., Union Point, Ga. (re-elected).

First Vice President, Frank L. Chipman, of Charles Chipman Sons, Easton, Pa.

Second Vice President, F. J. Thieme, Wayne Knitting Mills, Ft. Wayne, Ind.

Secretary and Treasurer, C. B. Carter, Knoxville, Tenn.

For the executive committee, two years' term, Garnett Andrews, Richmond Hosiery Mills, Rossville, Ga.; F. W. Simons, of the Simons & Struve Hosiery Company, Philadelphia.

For the one year term, J. H. McPhail, Nashville Hosiery Mills, Nashville, Tenn.; M. S. Gabriel, of the Henry Gabriel's Sons of Allentown and Coopersburg, Pa.

Following is a list of most of those present at some one or more of the meetings, arranged as far as possible according to sections:

Manufacturers from Pennsylvania:—W. L. Adcock, Pottsville, Pa.; J. C. Adcock & Bro., Pottsville, Pa.; H. J. Baughman, New Cumberland (Pa.) Knitting Mills; Geo. W. Bolleran, Blue Cross Knitting Mills, Adamstown, Pa.; H. A. Brownhill and Mr. Kramer, Brownhill & Kramer, Philadelphia; A. Boyle, Boyle & Bro., Philadelphia; Chas. Chipman and Frank L. Chipman, Easton, Pa.; J. C. Clemons, Searle Knitting Co., Pottstown, Pa.; Jas. C. Creshoff, Vesper Hosiery Mills, Philadelphia; D. C. Dalsimer & E. E. Locke, Liberty Bell Hosiery Mills, Frankford, Philadelphia; Chas. F. Davies, Reading (Pa.) Knitting Mills; J. W. Durbin, Williamstown Hosiery Mills, Williamstown, Pa.; H. M. Daniell, Mayo and Avalon Mills, yarns and hosiery in the South, Philadelphia; H. F. Drenk, Doylestown, Pa.; Geo. D. Dobbins, South Bethlehem, Pa.; J. E. Eddishaw, Philadelphia; H. B. Freed, M. B. Bergey & Co., Souderton, Pa.; Jos. F. Gee & John Hall, Hall Hosiery Co., Philadelphia; M. S. Gabriel, Allentown, Pa., Wyomissing Hosiery Co., Reading, Pa.; Hugo Huettig, German-Am. Hosiery Co., Philadelphia; William H. Kehl, Hawk Knitting Co., Reading, Pa.; W. H. Keen, Keen & Kniley, Lykens, Pa.; F. A. Kurtz, Slatington (Pa.) Knitting Mills; A. R. Kreider & Son, Annville, Pa.; O. W. Lerch, Bath Knitting Mills, Bath, Pa.; G. H. Leininger, Industrial Hosiery Mills, Reading, Pa.; M. Lieberman, treas., West Branch Hosiery Mills, Milton, Pa.; Ed. P. Jones, Lykens (Pa.) Hosiery Mills; Madiera & Wanner, Fleetwood, Pa.; Frank I. McElroy, Steelton Hosiery Mills Steelton, Pa.; John J. McDevitt, Credential Mfg. Co., Philadelphia; E. P. McCabe, Hygienic Knitting Mills, Philadelphia; Robert Meyer, German-American Hosiery Co., Philadelphia; Jas. A. O'Connell, Marion Hosiery Mills, Philadelphia; Chas. Moller, Philadelphia Knitting Mills; Jos. B. Miller, Jos. B. Miller & Sons, Philadelphia; Jos. B. Rhoades, Dauphin Hosiery Co., Steelton, Pa.; H. A. Romberger, Philadelphia; Chas. W. Rank, Unrivaled Hosiery Mills, Williamstown, Pa.; Wm. R. Roberts, William Sullivan & Co., Philadelphia; F. W. Simons, Simons & Struve Hosiery Mills, Frankford, Philadelphia; Jos. H. Starin & Co., Philadelphia; William Sullivan, Philadelphia; L. C. Vaughan, Mechanicsburg, Pa.; F. S. Weaver, Ephrata Hosiery Mills, Ephrata, Pa.; W. C. Woodburn, Newville Knitting Mills, Newville, Pa.; F. A. Weiss, Lenoir City, Tenn.; M. C. Hall, Philadelphia; F. Wunderly, Nazareth, Pa.; Wallace Wilson, Philadelphia; R. A. Young, Coopersburg, Pa.; F. Urich, Chemnitz Mfg. Co., Philadelphia; Franklin Therapleton, Philadelphia; N. Maiter Duncan, Lykens (Pa.) Knitting and Manufacturing Co.; H. E. Ashmore, Melbourne Knitting Mills, Philadelphia.

Hosiery manufacturers from Southern States:—Geo. T. Andrews, Rocky Mt. Hosiery Co. and

Enfield Knitting Mills, Rocky Mt., N. C.; J. Irvin Bitner, Windsor Knitting Mills, Hagerstown, Md.; J. S. Bowers, Scotland Neck Cotton Mills, Scotland Neck, N. C.; W. F. Carr, Durham Hosiery Mills, Durham, N. C.; David Cottrell, Hammonton, N. J.; F. H. Cotton, Algodon Knitting Mills, Fayetteville, N. C.; H. J. Crosson, Windsor Knitting Mills, Hagerstown, Md.; D. J. Carpenter, Black Crown Knitting Co., Newton, N. C.; W. W. Duckworth and J. A. Grover, Wiscasset Mills Co., Albemarle, N. C.; L. K. Harvin, Manning (S. C.) Hosiery Mills; J. W. Ingle, Climax Hosiery Mills, Athens, Ga.; S. M. Johnston, Knoxville (Tenn.) Hosiery Mills; John M. Jones, Jr., Sweetwater (Tenn.) Hosiery Mills; W. M. Jones, Birmingham, Ala.; Harold Lamb, Union Mfg. Co., Union Point, Ga.; David Lowenstine, Pres., Union Mfg. Co., Frederick, Md.; J. B. Neill, Wood Knit Co., Morristown, Tenn.; R. M. Oates, Hendersonville, N. C.; H. A. V. Parker, Parker Hosiery Mills and Dye Works, Portsmouth, Va.; F. M. Patterson, High Point, N. C.; J. H. M. Phail, Nashville Hosiery Mills, Nashville, Tenn.; M. D. Rosenau, Treas., Rosenau Hosiery Mills, Tuscaloosa, Ala.; R. J. Sheppard, Salem Knitting Mills, Salem, N. J.; John L. Sutphen, Wilmington, Del.; Chas. Taylor Co., Wilmington, Del.; S. H. Weihenmayer, Hagerstown, Md.; G. H. Zimmerman, Union Mfg. Co., Frederick City, Md.; R. S. Schaup, Richmond Hosiery Mills, Chattanooga, Tenn.; A. M. Carr, Durham (N. C.) Hosiery Mills.

From New England:—F. B. Brown, Ipswich (Mass.) Mills; E. B. Gorman, Nonotuck Silk Co.; A. W. Sulloway, Sulloway Mills, Franklin, N. H.

From Central and Western States:—D. L. Galgraith, World Star Knitting Mills, Bay City, Mich.; James P. Logan, Racine Knitting Co., Racine, Wis.; R. C. Withers, Royal Knitting Co., Mt. Vernon, Ill.; T. J. Thieme, Wayne Knitting Mills, Fort Wayne, Ind.

Others besides hosiery manufacturers:—G. W. Ruth and C. W. Brillenjer, Treas., Ruth Machine Co., York, Pa.; Joseph H. Parvin, Joseph H. Parvin & Co., Philadelphia; Chas. Schoneman, Reading; R. P. Smith, Smith Drum Co., Philadelphia; J. J. Diamond, McCauley Dye Co., Philadelphia; Edw. Schultz, Catlin & Co., Philadelphia; C. B. Carter, secretary and treasurer, N. A. H. M., Knoxville, Tenn.; Lindsey J. Riggins, New York; A. W. Fayler, Philadelphia; W. H. Brown, Standard Oil Co., Reading; J. A. Winslow, New England Cotton Yarn Co., Philadelphia; D. J. Danker, Danker & Marston, Boston; Howell E. Bean, Young, Smythe, Field Co., Philadelphia; Walter N. Beatty, Dragon Dye Works, Philadelphia; A. T. Bradlee, Harding, Whitman & Co., Boston; F. B. Comins, American Moistening Co., Boston; S. Friedberger, Friedberger-Aaron Mfg. Co., Philadelphia; Geo. W. Chapin, Philadelphia; E. A. Newton, Philadelphia; H. G. Lord, A. H. Tyler, W. J. Flesh, Textile World Record; H. W. Bible, New York; M. A. Metcalf, Boston; Col. P. H. Corr, New England Cotton Yarn Co.; E. Frank Lewis, Lawrence; Paxton & O'Neil; Chas. Schoneman, Reading, Pa.; Robert S. Rudolph, P. Rudolph & Son, Philadelphia; C. H. Clark and S. H. Steele, New York; C. L. Meyers, Philadelphia; H. H. Hubbert, Philadelphia; Wm. H. Moyer, Geo. D. Mayo Machine Co., Philadelphia; H. T. Greenwood, R. Greenwood & Bault, Philadelphia; T. A. Blythe and M. P. Glynn, Richard A. Blythe, Philadelphia; Wm. H. Harris, Richard A. Blythe, Atlanta; M. P. Hoffmann, Chas. J. Webb & Co., Philadelphia; J. H. Jessup, Catlin & Co., Philadelphia; J. S. Bukhead, Philadelphia; C. W. Schaum, Schaum & Uhlinger, Philadelphia; Frank A. Snyder, H. & W. H. Lewis, Philadelphia; M. C. Hall, Philadelphia; Edw. S. Hyde, Edw. S. Hyde Co., Philadelphia; C. Walker Jones, Beckert Needle & Supply Co., Philadelphia; J. H. Connington, Albert Ivins Croll, Philadelphia; W. H. Chew, Philadelphia; J. H. Lighty, Philadelphia; W. G. Miller, Jones & Loughlin Steel Co., Pittsburg; W. F. Duffy, Mayo Knitting Machine and Needle Co., Franklin, N. H.; W. H. Albright, Albright & Stenton, Reading; Wm. R. Horn, Lowell (Mass.) Machine Shop; Elliott Bard, National Automatic Knitter Co., Philadelphia; Geo. D. Mayo, Geo. D. Mayo Machine Co., Laconia, N. H.; Richard C. Maddock, Philadelphia; Morris W. Ruddewn, Geo. V. Cresson & Co., Philadelphia; B. J. Hoffman, Chas. J. Webb & Co., Philadelphia; George Cooper, Argo Mills Co., Philadelphia; Fred A. Rakestraw, Edw. S. Hyde & Co., Philadelphia; Wilfred Wells, Philadelphia; W. H. Ermentrout, Reading, Pa.; W. P. McClure, National Automatic Knitter Co., Philadelphia; J. E. Lent, Jr., E. Jencks Mfg. Co., Providence, R. I.; R. J. Morningstar, E. Jencks Mfg. Co., Providence, R. I.; W. H. Berry, Berry & Smith, New York; James Taylor, Philadelphia; R. B. Denny, Geo. D. Mayo Machine Co., Philadelphia; W. S. Waterman, Harding, Whitman & Co., Philadelphia; E. H. Allen, Merrow Machine Co., Philadelphia; John W. Hepworth, J. Hepworth & Co., Philadelphia; Otto Walther, Philadelphia; A. W. Walkden, Scott & Williams, Philadelphia; Lawrence Neebe, New York; F. C. Eddleman, Philadelphia; Wm. T. Westerman, Ontario Spinning Co., Philadelphia; I. J. Scheeler, H. Brinton Co., Philadelphia; John P. Nay, Philadelphia; E. W. Knapp, Eddy & Street, Philadelphia; Paul Rothe, O. & P. Rothe Mfg. & Supply Co., Norristown, Pa.; Frederick H. Bishop, Universal Winding Co., Boston; John M. Zurn, O. F. Zurn Co., Philadelphia; Thomas Hill and Wm. R. Rietheimer, Philadelphia; A. J. Fleming, Catlin & Co., Philadelphia; A. W. Hicks, C. J. Webb & Co., Philadelphia; J. Stuart Bukhead, Franklinville Dye Works, Philadelphia.

AUTOMATIC POWER MACHINES AND THE SWEATER TRADE.

BY L. SCHEIDEG.

In a recent issue of the Textile World Record a subscriber inquires if the sweater business has come to stay, and I agree with your answer—it has. But in my opinion the manufacturer who is going to make a success of it will have to specialize on sweaters and related articles, such as blouses, jackets, golf vests, knit gloves, sporting goods, etc., and use the machine especially adapted for

this class of work. When the run on sweaters began some years ago many manufacturers, equipped with circular machines and influenced by the output of this type of machine and the greater difficulty of higher wages and help to operate the flat knitting machines, turned out great quantities of a cheap grade of goods at low prices. There were many unpleasant experiences and the price of these goods was reduced successively to a point where the low cost of manufacture was offset within a short time, and cheap materials had to be employed to avoid loss. This resulted in the dissatisfaction of the consumer and a falling off in the trade, so that the profit in that class of goods did not turn out to be so satisfactory as was anticipated, although no doubt some manufacturers may have made something out of it.

The good and well-finished woolen garment has always been in demand, and the makers of full fashioned sweaters and similar goods have, I think, been able to dispose of their output with relatively fair results. The past season was certainly hard upon the manufacturers of wool and knit goods. The continual increase in the price of wool, insufficient help and the competition of the small back-room family plant made it a hard proposition to make money, and only the best equipped factories or those making specialties were satisfied with the results.

I think one of the most important factors is the use of the automatic, flat, power machine. The best type of this machine, as it is built today, produces a flat knit article which is claimed to be just as good as that made on the Lamb principle hand machine, and by its greater output per operative employed reduces the cost of the product.

Moreover, manufacturers tell me that the machine does so much work automatically that less experienced operatives can be employed than on the strictly hand machines. I think the outlook for this branch of the knitting business is considerably brighter to those that keep their plant up-to-date and take advantage of the latest improvements in the way of automatic power machinery.

The installation of an equipment of this sort involves some capital and the manufacturer should carefully consider the following questions:

Is your trade of such a nature and organized in such a way that you are able to group your orders and manufacture in lots, at least in a few staple articles?

Is the locality favorable for your plant with regard to light, space, etc.?

Is your spooling well done, the bobbins of regular form and the yarn well prepared to run on the machine (paraffining or oiling)?

Is the management of your place in the hands of an experienced and reliable boss knitter, with some knowledge of machinery and lighter repairing?

If you desire to order power machines and to go into this new line of manufacturing, see:

1. That you have selected the right kind (gauge and size) of the machines, and submitted samples of the various articles to be produced to the manufacturer of the machines or his representative.

2. That the machines are not too complicated, but handy for the knitter, well grouped and solidly built.

3. Be careful to give your order to a manufacturer building those machines as a specialty on strictly technical principles, assisted by practical knowledge and experience. There are too many machines on the market today that are so unproportioned in the main working parts that their lifetime must be very short and their practical value below the average hand machine.

4. Get the best your money can buy and select machines that will be of some practical use to you, even if the special articles just now in demand are no more ordered and other kinds of goods will have to be made up.

5. Prefer a machine offered to you by some reliable and responsible agent with established stock in this country, able to supply you immediately with all parts, needles, etc., and saving you the unpleasant experience of having your plant partially stopped and the production handicapped because some parts of essential value for the regular work of the machines have to come from abroad.

Efficiency of Knitting Machines; Information Wanted.

Are our knitting machines doing as much work as they should? Which machines are falling behind in production? What is a fair week's work for our machines and how far short of it does the production fall?

These are questions of vital importance to every knit goods manufacturer and overseer of knitting. Correct answers to them will enable the manufacturer to locate machines that are doing less work than they should, to investigate intelligently the cause of the deficiency and apply the remedy. At present the usual method of judging the efficiency of a knitting machine is by comparison with what has been done before on similar machines and goods. This method is far from satisfactory. Important variations in the goods, size of yarn, speed or construction of the machines are often neglected, and as a consequence either more or less than is reasonable is expected from the mill.

The importance of a reliable method of judging the production of knitting machines and the fact that such a method is in regular use in the weaving industry has led us to try to apply to the knitting processes the principles of the method that is used for weaving.

The system in use for determining the efficiency of the loom consists in comparing the length of the cloth actually woven in a given time with what is known as the theoretical product for that time. This theoretical product is the cloth the loom would weave if running continuously during the whole working time of the mill. This continuous running never takes place because of the necessity for stopping to change shuttles and warps, tie in threads, fix the machine, etc. It is the amount of this time during which the loom is idle that in reality determines the efficiency of the machine. If, for example, 1,600 yards is actually woven on twenty looms in a week, and the theoretical production is 2,000 yards, it follows that the looms have been idle during one-fifth of the working time; in other words, that the efficiency of the twenty looms for that week was 80 per cent. If the efficiency drops to 70 per cent. the following week, the manufacturer knows that the efficiency of the machine is less, and can investigate the cause with the certainty that somebody or something is at fault.

In order to find a similar system suitable for the knitting process we first submitted the problem to an experienced knitter, F. W. Herington, who at once made some careful tests on several machines, the results of which, with his calculations, are given on page 143 of this issue. From the data and suggestions obtained from Mr. Herington we have devised a system which we desire to submit to all knitting manufacturers and overseers for criticism and suggestions in order that the best possible method may be found for determining the efficiency of knitting machines.

The plan is illustrated by the table on the opposite page. The first two columns give the length of yarn knit from each feed at each revolution of a circular, or each vibration of a flat machine. At the top of the other columns are the yarn sizes expressed by the run, the cotton, the worsted and the grain system. The figures below in these columns indicate the theoretical production for each feed in 100 hours per revolution per minute. For example, if a machine takes up 2 3/4 yards (99 inches) of yarn at each revolution or vibration and is knitting No. 9 cotton yarn, the theoretical production per feed and revolution per minute for 100 hours is 2.17 pounds, found opposite 2 3/4 yards (99 inches), and in the column headed 4 3/4 runs or 9s cotton.

Let us suppose that this machine, running 50 revolutions per minute with 4 feeds, produced 200 pounds of knit goods in 60 hours. The efficiency would be calculated from the table as follows:

2.17 (lbs.)×50 (r. p. m.)×4 (feeds)=434 lbs. theoretical product for 100 hours.

434 (lbs.)×.60 (60 hours)=260 lbs, theoretical product for 60 hours.

The actual product for 60 hours was 200

pounds; consequently the efficiency during that time was 200/260ths of the theoretical production, or (200÷260) 77 per cent. In other words, the machine was in productive operation for 77 per cent. of the working time.

THEORETICAL PRODUCTION OF KNITTING MACHINES. POUNDS FOR EACH FEED IN 100 HOURS PER REVOLUTION PER MINUTE.

Length of Yarn per Rev.	Runs	2	2¼	2½	2¾	3	3¼	3½	3¾	4	4¼	4½	4¾	5
	Cotton	3·8	4·3	4·8	5¼	5·7	6·2	6⅝	7·1	7·6	8·1	8·6	9	9·5
	Worsted	5·7	6·4	7·1	7·9	8·6	9·3	10	10·7	11·4	12·1	12·9	13·6	14·3
	Grains 120 yds.	262	233	210	191	175	161	150	140	131	123	117	110	105
Yds In.	Grains 100 yds.	219	194	175	159	146	135	125	117	109	103	97	92	87
⅛ 13½	.....	.70	.62	.56	.51	.47	.43	.40	.37	.35	.33	.31	.29	.28
¼ 18	.....	.94	.83	.75	.68	.63	.58	.54	.50	.47	.44	.42	.39	.38
⅜ 22½	.....	1.17	1.04	.94	.85	.78	.72	.67	.63	.58	.55	.52	.49	.47
½ 27	.....	1.40	1.24	1.12	1.02	.93	.86	.80	.75	.70	.66	.62	.59	.56
⅝ 31½	.....	1.64	1.45	1.31	1.19	1.09	1.00	.94	.87	.82	.77	.73	.69	.66
1 36	.....	1.87	1.67	1.50	1.36	1.25	1.15	1.07	1.01	.94	.88	.83	.79	.75
1⅛ 40½	.....	2.11	1.88	1.69	1.53	1.41	1.30	1.21	1.13	1.06	.99	.94	.89	.85
1¼ 45	.....	2.34	2.08	1.87	1.70	1.56	1.44	1.34	1.25	1.17	1.10	1.04	.98	.94
1⅜ 49½	.....	2.58	2.29	2.06	1.87	1.72	1.58	1.47	1.37	1.29	1.21	1.14	1.08	1.03
1½ 54	.....	2.81	2.50	2.25	2.05	1.88	1.73	1.61	1.51	1.41	1.32	1.25	1.18	1.13
1⅝ 58½	.....	3.05	2.71	2.44	2.22	2.03	1.88	1.75	1.63	1.52	1.44	1.36	1.28	1.22
1⅞ 63	.....	3.28	2.91	2.62	2.38	2.18	2.00	1.87	1.75	1.64	1.54	1.46	1.38	1.31
1⅞ 67½	.....	3.51	3.13	2.81	2.55	2.34	2.16	2.00	1.87	1.76	1.65	1.56	1.48	1.40
2 72	.....	3.75	3.33	3.00	2.72	2.50	2.30	2.14	2.00	1.87	1.76	1.66	1.58	1.50
2⅛ 76½	.....	3.99	3.54	3.19	2.90	2.66	2.45	2.28	2.13	1.99	1.88	1.77	1.68	1.60
2⅛ 81	.....	4.22	3.75	3.38	3.07	2.81	2.60	2.41	2.25	2.11	1.99	1.88	1.78	1.69
2⅜ 85½	.....	4.45	3.91	3.56	3.24	2.96	3.74	2.54	2.37	2.22	2.09	1.98	1.87	1.78
2⅜ 90	.....	4.68	4.17	3.75	3.41	3.13	2.88	2.68	2.50	2.34	2.21	2.08	1.97	1.88
2⅝ 94½	.....	4.92	4.38	3.94	3.58	3.28	3.03	2.81	2.63	2.46	2.32	2.19	2.07	1.97
2⅝ 99	.....	5.15	4.58	4.12	3.75	3.43	3.17	2.94	2.75	2.58	2.42	2.29	2.17	2.06
2⅞ 103½	.....	5.39	4.78	4.31	3.92	3.59	3.32	3.08	2.87	2.69	2.54	2.39	2.27	2.16
3 108	.....	5.62	5.00	4.50	4.09	3.75	3.46	3.21	3.00	2.81	2.65	2.50	2.37	2.25
3½ 117	.....	6.10	5.42	4.88	4.44	4.07	3.75	3.49	3.25	3.05	2.87	2.71	2.57	2.44
3½ 126	.....	6.56	5.83	5.25	4.78	4.38	4.04	3.75	3.50	3.28	3.09	2.92	2.76	2.63
3¾ 135	.....	7.03	6.24	5.62	5.11	4.68	4.32	4.01	3.75	3.51	3.31	3.12	2.96	2.81
4 144	.....	7.5	6.67	6.00	5.45	5.00	4.61	4.28	4.00	3.75	3.53	3.33	3.16	3.00
4½ 153	.....	7.97	7.08	6.38	5.80	5.31	4.90	4.55	4.25	3.99	3.75	3.54	3.36	3.19
4½ 162	.....	8.44	7.50	6.75	6.14	5.63	5.21	4.82	4.50	4.22	3.97	3.75	3.55	3.38
4¾ 171	.....	8.91	7.91	7.12	6.48	5.93	5.48	5.09	4.75	4.45	4.19	3.96	3.75	3.56
5 180	.....	9.38	8.33	7.50	6.81	6.25	5.77	5.36	5.00	4.69	4.42	4.19	3.94	3.75
5½ 189	.....	9.85	8.75	7.88	7.16	6.56	6.06	5.63	5.25	4.92	4.63	4.37	4.15	3.94
5½ 198	.....	10.31	9.12	8.25	7.50	6.88	6.35	5.89	5.50	5.16	4.85	4.59	4.34	4.13
5¾ 207	.....	10.78	9.56	8.63	7.84	7.15	6.63	6.16	5.75	5.39	5.07	4.79	4.54	4.31
6 216	.....	11.25	10.00	9.00	8.18	7.50	6.92	6.43	6.00	5.62	5.29	5.00	4.74	4.50
6¼ 225	.....	11.72	10.42	9.38	8.52	7.81	7.21	6.70	6.25	5.86	5.52	5.21	4.93	4.69
6½ 234	.....	12.18	10.83	9.75	8.86	8.12	7.50	6.97	6.50	6.09	5.74	5.42	5.13	4.88
6¾ 243	.....	12.66	11.25	10.12	9.20	8.44	7.79	7.23	6.75	6.33	5.95	5.62	5.33	5.06
7 252	.....	13.12	11.67	10.50	9.55	8.75	8.08	7.50	7.00	6.56	6.18	5.83	5.53	5.25

This example illustrates the method which which we invite our readers to criticise. It is the first plan, which can undoubtedly be improved, and after we have received suggestions for its improvement we will have new tables compiled and published in this magazine, and copies given to those who have given us the benefit of their criticisms. We ask each one making suggestions to include the following points along with any others:

1. If the present form of table is retained, what should be the limits of the lengths of yarn per revolution in the first two columns?

2. How fine should be the gradations in the length per revolution?

3. What should be the limits for the sizes of the yarns?

4. How fine should be the gradations in the sizes of the yarn?

5. What systems of yarn numbering should be added to those already given?

We shall begin the criticisms ourselves by

a suggestion that has occurred to us since the table was set in type. It might be better to base the table on the speed of the yarn per minute and thus eliminate all reference in the table itself to the length per revolution or revolution per minute. The table for 100 hours would then be as follows:

THEORETICAL PRODUCTION PER FEED FOR 100 HOURS

Yarn per feed per minute. Yards.	4¾ runs 9's cotton. Pounds.
130	103
135	107
140	111
145	115
150	119

To use this table the speed at which the yarn is fed to the machine is first found. If, for example, the machine with four feeds runs 50 revolutions per minute and takes up 2 3/4 yards at each revolution, the speed of the yarn would be (50 × 2 3/4) 137 1/2 yards per minute. Referring to the table, the theoretical production at this speed for 9s cotton, is found to be 109 pounds (average of 107 and 111). This 109 pounds multiplied by 4 (feeds) gives 436 pounds as the theoretical product for 100 hours. The percentage of efficiency is then found by comparison with the actual product, as already explained. A table like this seems somewhat simpler than the first one, and we hope our readers will help us to find a still better system.

THE FIRST CRITICISM.

The method outlined above for determining the efficiency of knitting machines was submitted to one of the leading builders of knitting machinery, a man of long experience, and who has made a study of the question of knitting efficiency. His comments are as follows:

Editor Textile World Record:

The Herington method is, of course, correct, and the only recommendation I would make in regard to it is that he should state how he gets the number of yards of yarn to one revolution, because this number varies with the length of stitch. My practice is to use to one foot of yarn a number of stitches equal to three times the gauge, which is equivalent to one foot of yarn to 4.7 inches of needles on the needle line. This would make the number of yards in a 20-inch cylinder 4.45. This would indicate that Mr. Herington is running a tighter stitch than the one which I have selected as the average. Of course, the selection is arbitrary, but I have a number of observations which indicate that it is sufficiently close to the average to warrant its use until better observations are available.

Your table is all right for the stitch which your standards would require. You will notice, however, that your table may be reduced to a simple equation as the production is inversely proportional to the count of the yarn, or, in other words, the production increases as the count decreases. For instance, suppose you state that the production per one hundred hours per feed when the stitch takes 4 1/4 yards per revolution is 30.4 divided by the cotton number of the yarn. If the yarn is No. 10, the production would be 3.04. If the yarn is No. 24, the production would be 1.27, and so on, just as you have it in your table.

Now, in regard to the standards of time and feeds which you have taken, your standards are academic, and to that extent are all right, but they are not what the practical man is accustomed to. When he thinks of a machine, it has four feeds and the production is generally given in pounds per day of ten hours. My practice is to use four feeds and a ten-hour day with the stitch stated above, and sixty turns per minute of the 20-inch cylinder, which gives me the following expression:

764÷Cotton No.=Theoretical production.

This gives a result very close to the one that you get with 4 1/4 yards per revolution.

In order to get the actual production the result should be reduced in the proportion of the actual running time to ten hours. I am now using nine-tenths as I believe that one hour of the day is as much as the machine should be stopped if the management is what it should be.

The result should, of course, be still further reduced for a number of feeds other than four and a number of revolutions other than sixty.

This equation I have charted for my own use for different numbers of revolutions and for different numbers of feeds. I use them in calculating tables of this kind and find them very convenient. CUMBERLAND.

PRODUCTION OF KNITTING MACHINES.

BY F. W. HERINGTON.

A method of calculating the theoretical production of a knitting machine and comparing it with the actual production in order to determine the efficiency of the machine would be of great value in knitting mills. I calculate the theoretical production from the following factors:

1. Number of needles in the cylinder.
2. Number of needles covered by one yard of yarn.
3. Number of revolutions per minute of the cylinder.
4. Number of feeds on the machine.
5. Hours per week.
6. Size of the yarn.

Two cylinders of the same diameter but of different gauge were taken for the test:

12 gauge; 20-inch cylinder; 490 needles; needles covered by one yard of yarn, 120; speed, 50 revolutions per minute; feeds, 4; hours per week, 50; size of yarn, 45 grains to 20 yards.

If one yard of yarn covers 120 needles and there are 490 needles in the cylinder, then there would be (490 ÷ 120) 4 1/12 yards of yarn from each feed covered by all the needles in the machine. Multiplying 4 1/12 by 50 (revolutions), we obtain 204 1/6 yards. Multiplying again by 4 (feeds) and we have 816 4/6 yards of yarn knit in one minute. This multiplied by 60 (minutes) gives 49,000 (yards), which multiplied by 50 (hours) gives 2,450,000 yards. The size of the yarn is 45 grains to 20 yards.

Dividing 2,450,000 (yards) by 20 (yards) = 122,500 (20-yard lengths). Multiplying 122,500 by 45 (grains) gives 5,512,500 grains. 5,512,500 (grains) ÷ 7,000 (grains per pound) = 787 1/2 pounds, theoretical production in 50 hours.

The actual production for the week was 461 pounds. The percentage of efficiency was therefore (461 ÷ 787) 58 1/2 per cent.

The details for the other machine were as follows:

24 gauge; 20-inch cylinder; 990 needles; needles covered by one yard of yarn, 232; speed, 50 revolutions per minute; feeds, 4; hours per week, 50; size of yarn, two threads of single 40 cotton, equal to 20 cotton.

No. 20 cotton weighs 50 grains per 120 yards or 8 1/3 grains per 20 yards. Calculating as before we obtain 152 pounds as the theoretical production for 50 hours. The actual production was 112 pounds. The percentage of efficiency was (112 ÷ 152) 73.7 per cent.

This percentage would seem to be good while the former seems to be low, but the difference in the weight or size of the yarn is a factor which must be considered. The stoppage of the machine for tying on the yarn is considerably more in one case than in the other. For instance, the 12-gauge yarn weighs 45 grains to 20 yards and the other only 8 1/3 grains. The quantity or weight of the yarn on a single bobbin is about the same in both, 2 1/2 pounds.

With the 12-gauge work we have 461 pounds or 184 bobbins of yarn to be tied in; with the 24-gauge there are only 112 pounds or 45 bobbins of yarn; less than one-quarter as many bobbins. The stoppage of the machine for tying on the yarn consumed four times as much time with the 12-gauge as with the 24-gauge work. All other stoppages, such as for oiling, cleaning and replacing broken needles may be assumed to be the same with both machines. The efficiency of the machine is consequently less on coarse gauges than on fine ones. A manufacturer running on coarse gauges should not expect as high a percentage as when running on fine ones. The value of the system consists in comparing the actual efficiency of one, two or more cylinders on the same yarn and stitch.

The number of needles covered by one yard of yarn is governed by the stitch. If the stitch is made longer the yarn will cover less needles; if shorter, more needles, thus changing the theoretical production. It will be noted that the 12-gauge cylinder contained 490 needles and the 24-gauge, 990. As the gauge of needles is measured by the number of leads in three inches of the circumference, it would seem that the 24-gauge, being twice that of the 12-gauge, should have twice the number of needles also, or 980 instead of 990. Here again theory and

practice in knitting machines do not agree. In leaded needles, however, there are three ways of measuring the gauge; from outside to outside of lead; from the outside of the needle in the lead to the outside of the opposite lead; and from the outside of the needles of each end, or from needle to needle as it is called. This will account for the difference in the actual number of needles between the two gauges, supposing the cylinders were of exactly the same diameter.

Again it will be noted that there is a marked difference in the sizes of the yarn. It might be assumed that if a 45-grain yarn could be knit on 12-gauge, that a yarn half the size could be knit on 24-gauge, but such is not the case. The yarn used on the 24-gauge machine was less than one-fifth that on the 12-gauge work. Single 12 yarn is as heavy as can be knit with a 24-gauge; this is slightly less than 14 grains to 20 yards, or less than one-third the size of the 12-gauge yarn.

With all these varied conditions in knitting machines is it possible to formulate a production table for the different gauges, sizes of yarn, and number of needles covered by one yard of yarn? I should like to hear from other correspondents on these points.

NON-SHRINKABLE KNIT GOODS.

Editor Textile World Record:

In your November issue appeared a letter with reference to non-shrinkable knit goods, signed "Bellinger." The author lays stress on the fact that non-shrinkable woolen knit goods can be made by knitting the fabric with one thread of cotton and one of wool, having the cotton stitch run considerably shorter than the woolen. There is little doubt that this method will prevent shrinking to some extent. If a cotton thread, the same weight as the woolen thread, is used, the garment will shrink more than half as much as an all wool fabric. A cotton thread has no effect on the shrinking properties of the wool fibre; when shrinking commences, the wool thread soon attains the length of the cotton thread and after further shrinking, gets shorter and consequently makes the cotton thread loose.

The method of introducing a cotton thread with a woolen thread has been in practice in the knitting industry for years. While this was first done to try to prevent shrinking, it was soon found that the method had no practical value. Today, cotton threads are still used in the manner indicated by Bellinger, but more to lessen the cost of the product than for anything else.

It is a fact that the only available method in the textile trade today absolutely to prevent shrinking of woolen knit goods is the use of the "Nevershrink" process. To demonstrate the fact that in practice the introduction of a cotton thread back of a woolen one does not prevent shrinking, I will say that 40 per cent. of the mills, which are practically applying the "Nevershrink" process to their products, are making fabrics like the one described by Bellinger. They know that their product, before applying the "Nevershrink" process, shrinks and they use the cotton on the back of the fabric only to cheapen the goods. The public demands such a product.

There is as great an advantage in using the "nevershrink" process on wool and cotton as there is in using it on all wool. If any wool is present in a fabric, the fabric will shrink in greater proportion than the proportion of wool used in the material. Information regarding this process may be obtained from Chas. H. Heyer, Real Estate Trust Building, Philadelphia, who is the general sales manager.

C. SCOTT ALTHOUSE.

Automatic Flat Power Knitting Machinery.

The Grosser Knitting Machine Co., Max Nydegger, 260 West Broadway, New York, N. Y., carries in stock a full line of Grosser flat knitting machines, both full automatic power machines and hand knitters. Grosser machines are specially designed and adapted for sweaters, jackets, blouses, gloves, mittens and goods of that character, and stock is carried in this country, together with all parts necessary, supplies and equipment. Mr. Nydegger is also the American agent for the cotton patent hosiery machines built by H. A. Ludwig, Chemnitz, Germany, for the production of automatic full fashioned hosiery, fine half hose, ladies' lace hose and fine underwear. Also for the French circular frames of C. Terrot Zohne, which have a world wide reputation. This establishment carries all the auxiliary machinery needed in the production of these goods, and can give quick and prompt attention to orders.

Two Leading Makes of Flat Knitting Machines

Mr. Otto Walther, 507 Bourse, Philadelphia, Pa., represents two of the leading German manufacturers of flat knitting machines. The Seyfert & Donner latch needle machines for manufacturing sweaters, blouses, shaker articles, sporting goods, etc., are in wide use on the Continent, and have been represented in this country for a number of years. Since Mr. Walther has taken the agency it has been represented in the same vigorous and straightforward way that has characterized his agency of Schubert & Salzer spring knitting machines for manufacturing full fashioned hosiery and underwear.

A number of the most successful American plants are equipped with this line of machinery. Seyfert & Donner have developed their full line of automatic power machinery to a high point.

HOPE DEFERRED.

The conditions brought about by the active demand for knit goods are well illustrated by the following poem, recently received by the Sibley, Lindsay & Curr Co., of Rochester, N. Y., from one of their customers whose orders for a certain style had remained unfilled because of the unexpectedly large demand for it:

"MANY HA HA."

We are waiting, waiting, waiting,
For N90 to appear;
The hours are growing weary,
Will we see them yet this year?

They are shivering, shivering, shivering,
The children are all cold,
Waiting for the underwear
That you so long have sold.

They are washing, washing, washing,
Old underwear all over town,
While the little folks are waiting
In bed or in night gown.

It is coming, coming, coming,
You have told us long ago;
But if this is all a "story,"
We wish you'd tell us so.

Come hustle, hustle, hustle,
Send N90 to us quick.
The doctors are all busy
For the children are all sick.

They are passing, passing, passing,
The cold, freezing wintry day,
And the children will be frozen to death
If you don't stop this dread delay.

By Long(waiting)fellow.

The origin of cloth manufacture in Leeds is uncertain. It was flourishing in 1272 and in 1373 a fulling mill was in operation.

Recent Knitting Patents.

KNITTING MACHINE. 802,650. Frederick La Rock, Oswego, N. Y., assignor to Frederick Conde, Oswego, N. Y.

KNITTING MACHINE. 803,042. Charles H. Wynne and Eustace C. Wynne, Leicester, England.

KNITTING MACHINE. 804,549. Ernest A. Pigeon, Providence, R. I., assignor of one half to E. Sutro & Son, Philadelphia.

KNITTING MILL NEWS.

New Mills.

Canada, Montreal. C. A. Gareau, care Banque d'Hochelaga, 95 St. James St., expects to start a small hosiery mill and desires catalogues of machinery necessary for the complete equipment of such a plant.

Indiana, Indianapolis. The Indianapolis Knitting Mills are now operating a plant of 50 machines, making men's balbriggan underwear. Company is capitalized at $50,000. F. B. Harbottle is president of the company and W. E. Stevenson, treasurer. Goods are sold direct.

*Michigan, Detroit. Wm. Rindskoff is president of the Wolverine Knitting Company, incorporated with capital stock of $25,000 and which has been operating plant since August 1st. Henry Rindskoff is treasurer of the concern and Samuel Rindskoff, buyer. They manufacture ladies' knit goods, infants' wear, shawls, scarfs. The plant is operated by electricity and goods are sold direct. All the machinery has not yet been set up.

*North Carolina, Lexington. Application for a charter has been made by the Nobby Hosiery Mill Company, with capital stock of $10,000, privilege of increasing to $100,000. They propose manufacturing hosiery for men and women. This is the company in which F. W. Patterson (High Point) and C. N. Thompson (Lexington) are interested.

Pennsylvania, Manheim. Chas. S. Witmyer advises us that he is contemplating the erection of a hosiery mill at this place.

Pennsylvania, Philadelphia. Messrs. Light Bros., formerly with the West Branch Hosiery Mills, Milton, Pa., are about to start up a plant for the manufacture of infants' and men's half hose on 10 knitters at Mascher & Oxford Sts.

Pennsylvania, Philadelphia. Mr. Hunt, late an officer of the Brown & Hunt Co., Mascher St. and Allegheny Ave., has gone to Europe for the purpose of seeking new and up-to-date machinery for the manufacture of full fashion hosiery for a new plant which he will start in this city.

Pennsylvania, Philadelphia. The Ideal Hosiery Mills is the name of a new concern which is about to start up at 2821 Jasper Street, where they have recently leased the two-story mill in the rear. The plant will be run by steam.

Enlargements and Improvements.

Alabama, Talladega. The demand for cotton hosiery manufactured by the Talladega Hosiery

Mills is constantly increasing and the company has been compelled to increase machinery. Last May they installed 10 Acme machines and later 5 more of same make and expect in the near future a further increase. A. G. Storey is president, treasurer and general manager and A. W. Hardin, superintendent.

Connecticut, Plainville. A small addition is to be built to the Plainville Knitting Mill.

Georgia, Columbus. A new building, 140 by 48 feet, two stories high, is under construction for the Georgia Manufacturing Co. New machinery will be installed. The present building will be utilized for dye house.

*Georgia, Grantville. The Grantville Hosiery Mills have just completed the erection of a spinning mill, 306 by 80 feet, brick, one story, and expect to have the machinery installed and plant ready to start operations about the middle of December. Cards and spinning machinery are Saco & Pettee Machine Shops' latest improved, with Atherton pickers. A 250 h. p. engine will furnish necessary power.

*Massachusetts, Lowell. The new three-story addition for the Lawrence Manufacturing Company is nearly ready for the rafters, and it is hoped will be covered before many weeks.

*New Hampshire, Tilton. We learn that G. H. Tilton & Son are simply building an additional story to their finishing department for purpose of increasing space.

*New York, Hamilton. Operations have been suspended in the Oneida Hosiery Co.'s mill preparatory to removing to Waterville. The Buell shoe factory has been leased at the latter place and will be remodeled. A new plant 100 by 50 feet, 3 or 4 stories, will be erected at Oneida early next year.

New York, Oswego. The Ontario Knitting Company has purchased the old armory for storage purposes.

New York, Philmont. Ground has been broken for a four-story addition, 100 by 60 feet, to the High Rock Knitting Co.'s mill.

Pennsylvania, Collingdale. The Collingdale Hosiery Mills Co. (not inc.) with a capital of $25,000, manufacturers of ladies' hosiery, are so busy that they are working their machinery until nine o'clock at night in an effort to keep up with their orders. They have recently put on the market a very fine 240 needle gauze hose, of lisle, to retail at 25 cents, for which orders are coming in in numerous quantities. The same may be said of the lace goods which they manufacture, and a two for a quarter hose, which they are turning out as a specialty, and for which they are also receiving large orders. They are now operating 26 knitters and 8 sewing machines, selling the goods direct. It is their intention to put up a new one-story building of brick, 52 by 25 feet, which is to be used for a finishing room and office. They also propose putting in a dye house during the coming spring.

Pennsylvania, Coopersburg. The Coopersburg Knitting Mill contemplates enlarging the capacity of the plant, if sufficient help can be secured. A dyeing and finishing plant is among the proposed additions.

Pennsylvania, Philadelphia. William Bennett, American and Diamond Sts., manufacturer of women's and misses' ribbed and flat cotton hosiery on 28 spring needle and 125 latch needle knitters reports business as good. Mr. Bennett until recently also manufactured women's underwear, but states that he has given up this branch of the business and disposed of the machinery. He is now running on hosiery only selling direct.

Pennsylvania, Philadelphia. Barger & Bains, manufacturers of seamless hosiery at Turner and Mascher Sts., report that they are so busy that they have been compelled to almost triple the capacity of their plant. They are now running 87 knitters and 3 sewing machines. A new partner has also been taken into the firm, which is now run under the name of Barger, Bains & Munn (registered.)

Pennsylvania, Philadelphia. Since removing from their old location at Indiana Ave. and A St., to Palethorp and Oxford Sts., Messrs. Liveright & Davidson have increased their plant to 100 machines on which they are manufacturing seamless hose and doing a large business. The goods are sold direct.

Pennsylvania, Philadelphia. The Thomas D. Weston Company, manufacturers of high grade worsted golf gloves, reports that they are very busy. The company has for its offices William M. Field, president; William L. Waring of New York, vice-president, and Thomas D. Weston, secretary, treasurer and manager. This concern, which was started up in the spring of this year, has been steadily increasing its capacity and are now operating 8 knitting and 6 sewing machines, 4 loopers and 1 winder, using 18 to 32/2 worsted and 16/2 mercerized yarns. The machinery for this establishment was brought over to this country from England and Mr. Weston reports that 5 more are now on the way to be installed in their factory. He also states that it is their intention to remove to a building of their own, as soon as a suitable one can be secured. The plant is run by steam and electricity.

Pennsylvania, Philadelphia. The W. Godey Ellis Co., proprietors of the Star Seamless Hosiery Mills, 415 to 419 Vive St., are very busy on women's and misses' cotton, woolen and worsted seamless hosiery on 300 knitters, which they also dye and finish. This concern has recently given out a large order for new machinery which they expect to put in operation as soon as it is received. The officers of the company are: President, W. Godey Ellis; vice president and superintendent, Augustus M. Slack, and Andrew C. Ayres, treasurer.

Pennsylvania, Philadelphia. The Boardman Knitting Mills, 10th and Diamond Sts., under the able management of their vice-president and superintendent, Edwin Boardman, have almost doubled the capacity of their plant since their incorporation about a year ago. They are now operating 28 knitters, 30 sewing machines by electricity on ladies' and children's ribbed underwear of cotton, silk, lisle and worsted. Mr. Boardman states that the plant is entirely sold up.

Pennsylvania, Philadelphia. The Royal Knitting Mills, 1427 to 33 Catharine St., which started up a year ago with a capital of $10,000, B. Robbins as president and treasurer, has taken in another floor to which they will remove their office, which is now located in the Bourse Building. They are operating 20 knitters and 15 sewing machines on ladies' blouses, boys' and infants' sweaters of wool and worsted. They are doing a good business.

Pennsylvania, Philadelphia. The Novelty Knitting Mills, 70 and 72 North 4th St., have increased the number of their machines to 75, having just put in 5 new Lamb knitters. They are very busy on ladies' woolen and worsted blouses etc., selling the product direct.

Pennsylvania, Philadelphia. The Keystone Knitting Mills, 103 North 2d St., now operating 6 knitting, 4 sewing and 1 buttonhole machine with hand and electric power, are so busy that they are compelled to work until 10 o'clock at night. They state that after the 1st of the year they will remove from their present quarters to another location where they can get more room, when they will put in 10 new knitters (already ordered), 6 sewing machines and a new winder. They manufacture blouses, sweaters and golf vests, using 2/21 worsted yarn.

Pennsylvania, Philadelphia. The Hutton Mfg. Co., 20 Strawberry St., manufacturers of cotton and worsted bathing suits, eiderdowns, etc., have put in two new spring needle machines and are now operating 5 knitters in all and 40 sewing machines. They report business as good. They buy 16 to 32 worsted yarns.

Pennsylvania, Philadelphia. Messrs. Brownhill & Kramer at Memphis Street and East Columbia Avenue report that they are very busy on men's and women's fine hosiery and children's ribs. They are now running 40 heads round frames, 105 seamless knitters, 64 ribbers, 34 loopers, 2 sewing machines and have recently put in 10 Bonnaz machines. They have also remodeled the building in which they are located, having put in new floors throughout the entire plant and also put up a new two-story brick addition in the rear 30 by 50 feet, the first floor of which they are using for a wareroom and the upper floor have been installed with machinery, etc., thereby making the establishment one of the most up-to-date in that vicinity. They are also doing their own dyeing and finishing, selling the goods through New York.

Pennsylvania, Scranton. The Scranton Knitting Mill is to expend about $20,000 in additions to the plant. This mill is operated on sweaters, cardigan jackets, etc.

*Pennsylvania, South Bethlehem. The Liberty Hosiery Mill has installed nine new machines in the plant recently started here. Further machinery additions are contemplated.

Mills Starting Up.

*New York, Brooklyn. The American Knit Goods Company's plant, which has been shut down for about 3 months, has resumed operations, the plant having been purchased by a syndicate from the receivers. It is stated that the new owners propose reorganizing the business and continuing operations.

Vermont, Bennington. Operations have been resumed in the Bennington Knitting Co.'s mill, which has been idle for several months.

Mills Shutting Down.

Pennsylvania, Philadelphia. The Girard Knitting Mills, located at 10th and Susquehanna Ave., manufacturers of Tam O'Shanters and toques on 15 latch needle knitters and 5 sewing machines, electric power, state that they are closing up their affairs preparatory to going out of business.

*New Jersey, Burlington. The Burlington Knitting Mills, reported in hands of receiver, will not continue operations and the building and machinery will be sold.

Facts and Gossip.

New York, Johnstown. The Johnstown Knitting Mills have been incorporated with capital stock of $50,000 and will continue the Johnstown Knitting Co.'s plant, of which they are successors. Among the incorporators are Harold B. Northrop, Alfred D. Dennison and Nathan F. Wells.

*North Carolina, Lexington. The new knitting mill proposed at this place has changed name from Nobby Hosiery Mill to Yadkin Knitting Mill Company.

*Pennsylvania, Milton. We have been advised by M. Lieberman that the organization of the West Branch Knitting Company has not yet been made complete.

Pennsylvania, Mount Olive. A new hosiery mill, 40 by 80 feet, brick, is to be erected here by H. A. Romberger, operating mills at Middletown and Newport. It is expected that operations will begin about January, employing about 70 girls.

Pennsylvania, Philadelphia. The United States Knitting Mills, with its factory at 13-15 and 17 South 3d St. and office 240 Market St., are doing a large business on wool and worsted sweaters, blouses, golf vests and juvenile sweaters. They are now operating 90 knitters and 50 sewing machines by electricity, the goods being sold direct. John Haber is the treasurer, superintendent and buyer for the mills.

Pennsylvania, Philadelphia. The Elk Knitting Mills, 10th and Diamond Sts., with a capital of $75,000, report that business with them is very active, and that their machinery is running full time on ladies' and children's ribbed underwear of silk, lisle, cotton, worsted and merino, on 50 knitters and 40 sewing machines. The officers of the company are Harry Nelke, president, and Herbert L. Nelke, treasurer.

Personals.

L. L. Williams, who has been for 32 years overseer of carding at the Dunham Hosiery Co., Naugatuck, Conn., has resigned.

Stephen Bowen, president of the John F. Brooks Co., manufacturers of infants' knit goods, Highlandville, Mass., was married Nov. 9th to Emily Frances Pratt of Boston, Mass.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices, and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Rotary Cloth Press. Wm. Whiteley & Sons, Huddersfield, England. An improved rotary cloth press embodying several new features, one of which is a cooling device. An air distributer is affixed to the top of the machine and the air is blown on the surface of the cloth across its entire width.

Automatic Loom. The Perfect Feeler Automatic Loom Co., Bradford, England. An automatic shuttle changing loom running 180 picks per minute.

Loom Reed. Fritz Frowein, Barmen, Germany. A double reed for weaving closely set warps. The wires of the two reeds are bent so that they come in line for a short distance at one point, forming a reed with the required set. This part is used for beating the filling into the cloth. When the lay is thrown back for the shuttle to pass through the shed the warp threads leave this closely set part of the reed and more space is allowed for them between the wires of each reed.

Cloth Straightening Machine. Silvio Schewezik, Elberfeld, Germany. A machine for straightening the filling in cloth that has become twisted out of shape.

Bleaching Apparatus. Fr. Gebauer, Berlin, Germany. A new machine for preparing cloth and yarn for the bleaching process. The cloth is treated continuously in the open width.

Singeing Machine. J. J. Dierichs Sons, Barmen, Germany, are building a machine for singeing cloth specially adapted for heavy goods made of vegetable fibres.

Wool Washing Machine. F. Bernhardt, Leisnig, Germany, is building an improved wool washing machine, by which the scouring liquor is forced through a layer of the wool by means of jets from perforated pipes.

Hygrometer. The Sutcliffe Ventilating & Drying Co., Manchester, England, have recently brought out an improved hygrometer for registering temperatures up to 200 deg. F. It is intended specially for drying rooms to indicate the moisture in the atmosphere and enable the operator to regulate the supply of fresh air and keep the dryer working at its highest efficiency.

Wool Card. Newman & Sons, Huddersfield, England, are placing on the English market an improved wool card called the "Universal." It was designed in Germany.

Knitting Lace Effects. Moses Mellor & Sons, Nottingham, England. A straight bar ribbed knitting machine for producing lace effects on ribbed work. It is specially adapted for ribbed tops and edging.

Doubling and Twisting Frames. Hall & Stell, Keighley, England. A twister with upright delivery rolls and specially designed for three to six-ply yarn.

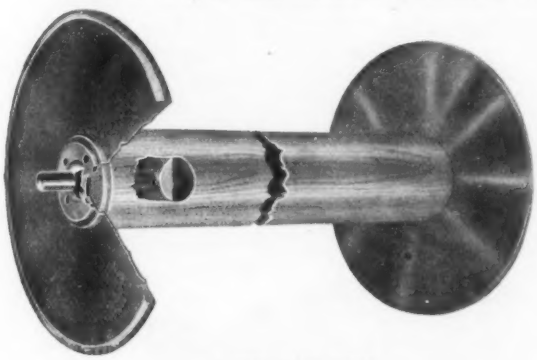
Ball Bearing Spindle. Hall & Stell, Keighley, England. A ball bearing spindle and foot stop for spindles which, it is said, is not open to the objection of becoming clogged with fly as is the case with washer bearings.

Piano Punching Machine. John Jardine, Nottingham, England. An improved piano punching machine for lace jacquards.

Squeezer for Indigo. Edouard Esser & Cie., Goerlitz, Germany. A squeezing apparatus for loose stock as it comes from the indigo vat. Instead of the usual single pair of squeeze rolls a series of these rolls is arranged to run at a gradually increasing speed, thus tearing the loose stock apart and opening it to allow the air to enter between the fibres and the stock to become uniformly oxidized.

A NEW JACK SPOOL.

Up to the present time the many devices put upon the market to prevent jack spool heads and nuts from becoming loose have proved inadequate. The cause of loose heads has not in the past been properly diagnosed and consequently the many attempts to secure stability have failed, with the result that the old wooden head jack spool with all its defects is still in extensive use. To overcome the defects of the spools now in use Sweet & Doyle, mill furnishers, Cohoes, N. Y., have brought out a spool of new construction, which they feel confident is the only jack spool made in which the spool barrel itself acts as the gudgeon, and stands all the strain. The gudgeon proper acts only as a guide or support when the spool is on the frames in use, consequently the heads do not get loose.



A NEW JACK SPOOL.

By examining the cut carefully the recess in the head and the offset in the barrel that fits perfectly into the recess will be noted. These make the head solid and are claimed to have solved the problem of a perfect jack spool, which will stand heavy work and will not allow the nut, gudgeon or head to loosen.

The rough usage which jack spools invariably receive by dropping on the floor is the most severe test of their ability to remain firm, and is the place where all kinds of heads—wood, fibre and steel—have gone to pieces. The Sweet & Doyle spool takes the blow on the spool itself, instead of on the gudgeon; thus there is no chance for the hole, which acts as a collar or bushing for the gudgeon, to become enlarged and leave a wobbly head and a crack between the head and the barrel for the roving to catch in. The absence of this fault alone will increase the spinning and card room production.

The claims for the Sweet & Doyle spool are: A perfectly smooth head, no slivers, a stiff spool, the strongest spool made, the longest lived spool, practically indestructible, as cheap as the best of other makes. When the barrel is worn out a new barrel makes the jack spool as good as new. The manufacturers are prepared to fill orders promptly and will be pleased to give any further information to those interested.

PORCELAIN ROVING, YARN AND CLOTH GUIDES.

Doubtless many textile finishers and dyers would be surprised if they knew the amount of loss annually resulting in their respective departments from defects caused by poor roving and yarn guides and from damage to the goods by defective guides in dyeing machines, fulling mills, washers and other finishing machines. Such a knowledge would cause the application of the only complete remedy, the use of high grade porcelain guides wherever cloth is passed through guide openings in rope form. In selecting guides of this kind it is necessary to discriminate between the different kinds that bear the name porcelain. The Mitchell-Bissell Co., 38 Murray St., New York, have manufactured porcelain guides for roving, yarn and cloth for many years and have made the requirements of textile mills a special study.

It is eighteen years since this company called the attention of the textile trade to the advantage of using guides made of genuine porcelain. At that time there were on the market a few guides (probably comprising from fifteen to twenty patterns), composed of a porous body and covered with a soft glaze, which, by a great misnomer were called china or porcelain guides. In this application of the term china to all sorts of pottery, the distinction between the different qualities has been lost, and the name is no longer a guide to the purchaser. When new, common pottery very closely resembles hard

porcelain in appearance, and, unless broken, it is difficult ,even for an expert, to detect the difference. Points of differences, however, exist, and most important are they to the manufacturer of textile fabrics that would use a perfect guide rather than one entirely unsuitable. In common pottery, the body and glaze are not the same, nor are they fired at the same heat; hence the contraction and expansion of body and glaze are not equal, and, as a consequence, in a little while fine cracks appear on the surface. This is what is known to the potter as crazing. Each of these small cracks is nothing less than a sharp cutting edge to the yarn which passes over it, and can be readily detected by the use of a good glass.

Hard porcelain does not craze nor crackle, for the body is composed of the same materials as the glaze; they are fused together in a vitreous homogeneous mass at the highest heat, and the expansion and contraction are therefore the same. Common pottery is made of a porous body and covered with a soft lead glaze; this is soon cut by the friction of the yarn ,and is a material entirely unsuitable to use for yarn guides. True porcelain is as hard as flint; the glaze is as hard as the body.

The Mitchell-Bissell Co. now make nearly four thousand different patterns, designed solely for textile machinery, and the advantages of porcelain wearing surfaces for yarn and thread guides is a demonstrated fact, recognized by manufacturers in all branches of the industry. The Mitchell-Bissell porcelain guides are carefully catalogued, each piece being numbered and illustrated so that manufacturers can easily find the form required. Following is a partial list of the different guides:

Braider eyes,
Bobbin Winder cups,
Buttons,
Creel steps,
Compressors,
Cop winder guides,
Detector guides,
Doubler guides,
Drop wire guides,
Enamel thread guides,
Foster winder guides,
Glass rods, tubes and dents,
Grooved eyes,
Horse shoe guides,
Handles,
Hooks,
Mouth pieces for fulling mills,
Oblong eyes,
Payne winder guides,
Pigtails,
Pitons,
Pulleys,
Quiller cup linings,
Quiller guides,
Reel guides,
Rings (glass),
Rings (marquisen),
Rollers,
Rollers (grooved),
Roving guides,
Runners for gassing machines,
Shuttle eyes,
Shuttle pads,
Shuttle springs (brass),
Steps,
Tensions,
Tensions (carpet),
Tensions for silk spinning,
Taper eyes,
U guides,
Universal winder guides,
Warp rings,
Winder guides,
Worsted guides,
Worsted guides in iron casting,
Warper guides.

The use of real porcelain guides throughout a textile mill reduces waste, improves the quality of the yarn and prevents damage to the cloth. Further information regarding the Mitchell-Bissell Co.'s guide can be obtained on application to the manufacturers.

MECHANICAL DRAFT.

Experience has shown that in handling hot gases with a fan, as in a plant producing induced draft for boilers, it is difficult to give the fan shaft a suitable bearing at the inlet side. A bearing here would necessarily be

FIG. I.

situated in the inlet area and would be constantly surrounded by hot flue gases. Much better results have been obtained by the use of an over-hung wheel, having, in addition to the two engine bearings, a bearing on the engine side of the fan, but none on the inlet side. The usual form of construction, that is, providing for a third bearing separate

from the engine, has, however, given trouble from the fact that this bearing cannot readily be lined up with the two engine bearings.

Fig. 1 shows a new method of construction which overcomes this trouble. All three

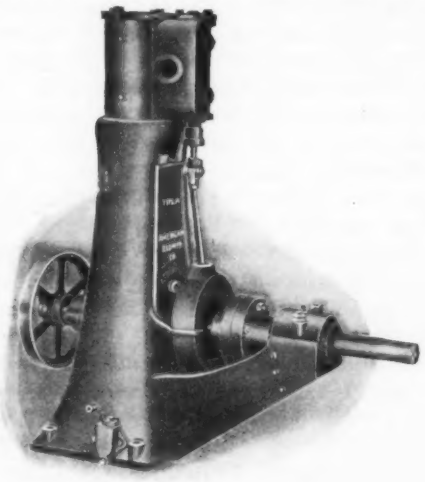


FIG. 2.

journal boxes are cast in the engine frame, Fig. 2, and can be bored with the same boring bar. Thus it is impossible for them to be out of line. The fan bearing is water-cooled and ring oiled. From the fact that all bearings are bored at once, a self-aligning bearing such as would otherwise be necessary is not required here, still further simplifying the arrangement. In addition to these points, it will be noticed that the bearing is supported by the engine bed and not by the housing of the fan as would otherwise be the case. This simplifies the construction by doing away with the additional bracing usually found on fan housings.

The wheel, Fig. 3, is varied somewhat from the ordinary construction. In place of the usual three spiders is substituted one heavier one, built of I-beams cast into the hub. The blades are braced upon each other, as shown in cut. The wheel constructed in this manner has been shown to be fully as strong and rigid as the ordinary three spider form.

By the use of a single spider the necessity for more than one hub on the shaft is obviated. In this manner, the load of the wheel is concentrated upon a comparatively short length of shaft. Moreover, with the deep cone in the casing as shown in Fig. 1, and the fan bearing sitting far in, as it does, the load of the fan is placed very near to the fan bearing. In fact, the bearing is included within the width of the fan blades. This point is of great importance, since were the fan of the ordinary three spindle design, the centre of gravity would be some distance out from the bearing and there would be the tendency of the shaft to move on the fan bearing as a fulcrum and cause an upward thrust in the engine and on the engine journal caps. With the single spider, this trouble is not encountered.

The engine is of the enclosed type, oiled by a recently devised pump which distrib-

FIG. 3.

utes copious streams of oil over all the reciprocating and revolving parts, even lubricating the eccentric outside of the frame. Tests in actual practice have proven that it will run several months without oiling or adjustment.

This outfit is manufactured by the American Blower Company of Detroit, Michigan, from which further information and prices may be obtained.

There is little doubt that the first piece of cloth to be woven from shoddy was made in Batley by Benjamin Law, in 1813.

Dyeing, Bleaching, Printing, Etc.

BLEACHING YARN FOR INGRAIN CARPETS.

BY HORACE KENYON.

No great amount of machinery is required for bleaching yarn; a good building, good ventilation, good drains and good water, are, however, essential to success. It is necessary to have a kier, or more than one if the output is large; one holding from 700 to 1,000 pounds will be found a convenient size. A blow pipe, or what is commonly called a vomit pipe, should be placed in the center. If the kier is made of wood all bolts should be covered and no nails left exposed to come in contact with the yarn; otherwise there will be iron stains and endless trouble. If the kier is iron the inside should be covered with a few coats of lime wash, or, better still, a copper lining. If the blow pipe is iron it should be enclosed in a wooden casing. The iron kier will prove more economical in the end.

Besides the kier it is necessary to have four strong wood vats, each about three feet wide and from 12 to 15 feet long. Two of them should be lined; one for the chemic bath and one for the acid. The other two are used for washing and do not need to be lined. A supply of sticks must be provided to fit across these tanks to hang the yarn on and to give the skeins the necessary turns in the liquor and washing baths. A convenient arrangement is to have the chemic tank followed by the two washing tanks with the acid tank at the other end. There should be room enough between the tanks to allow a man to turn around easily. The washing tanks should have a steam pipe along the bottom so the yarn can be boiled if required. Over these vats is placed a bonnet with an outlet pipe to the open air to take away the steam. At convenient distances from the tanks are placed the horses to hang the yarn on when it is taken from the vats.

After washing the yarn is extracted for the drying process. The drying frames are enclosed in a glass partition, enough room being left to allow one to pass around the frames, which make about 100 to 110 revolutions per minute. Near the floor are four 1 1/2-inch steam pipes for heating the room to about 90 degrees F. This temperature with a good circulation of air by a fan is sufficient for rapid drying at a moderate heat, and the yarn is softer and more pliable than when dried at a higher temperature. After a short time the operator is able to regulate the temperature as required. It is necessary to remove the moisture in order to maintain the efficiency of the process. When dry the yarn is taken from the frames and passed through the windows to the tables near the presses, where it is packed into bundles ready for sale.

With an outfit of this description and experienced help to handle the yarn, six men and two boys ought to turn out 4,000 pounds a day.

No hard and fast rule can be given for the chemical treatment of the yarn. Recipes and formulas will be of little avail unless the operator has intelligence and good judgment. Many formulas are misleading and inexperienced men get into trouble by following them literally. What will bleach one kind of yarn will have but little effect on another. For example, a soft spun yarn will not require the same amount of bleaching as a hard twisted yarn. The two should never be worked together as they will not come out alike. The same rule applies to fine and coarse yarns. If the yarn is in skeins it is put into five-pound bundles, as that is a convenient size for handling. Care should be taken that the tie band is not too tight. The yarn is packed in the kiers and if dry is soaked awhile, as it takes some time for the liquor to penetrate the yarn. If this precaution is neglected the yarn will be burned by being short of liquor. The following preparation for 1,000 pounds of yarn is made by boiling in a kettle:

20 to 30 pounds soda ash.

10 to 15 pounds caustic soda.
5 to 10 pounds resin.

The quantities are varied according to quality and condition of the yarn. The mixture is run into the kier with the yarn and boiled from six to eight hours. After boiling the yarn is taken from the kier, put on the sticks and given a good washing in the vat, and then put on the horses to drain. The chemic bath is made to stand at from 1 to 2 degrees Tw., according to the condition of the yarn. After the yarn has had a few turns in the chemic it is put either on the horses to age or on a staging until it is decolorized and free from motes and ticks. This will require from three to seven hours. When clear, wash in two waters and give an acid bath; sulphuric acid at the same strength as the chemic is preferred. The yarn is given a few turns in the acid, lifted and left to age a little on the horses, or the staging, care being taken that the skeins do not dry in spots, as this makes the yarn tender. The acid bath neutralizes the chlorine and the chemic on the yarn. The yarn is left to age about two or three hours, then washed free of the acid. Any acid left in the yarn will affect the bluing. The yarn is blued to shade on the last wash and is then ready for the extractor. When extracted it is dried and packed for sale.

Some bleachers do not use soap or softeners, believing their use will turn the goods yellow. I have found no difficulty in this respect if the acid bath is strong enough to clear the chemic. The stains and dirty places in the yarn come from the refuse of the soda ash that is absorbed in the kier during the process of boiling. A good bleaching paste for this purpose is made with 50 pounds of good white tallow and 10 pounds of caustic soda. Dissolve the tallow and add the caustic in about 20 gallons of water. Boil again and add more water until about 50 gallons are obtained. If a neutral soap is desired, tallow is added until all the alkali is absorbed. This will not make the yarn powdery, but will give it a softer feel and help to whiten the goods. If the acid bath is properly prepared and used there will be no cause to complain of the color, as the paste gives the yarn a brighter appearance.

REMARKS.

The above article was obtained in response to an inquiry from a manufacturer, who desired information regarding the bleaching of carpet yarn. His comment on it is based on a long experience in the manufacture of carpets and is well worth publication. It is as follows:

Editor Textile World Record:

I am afraid the Kenyon process contradicts all authorities on yarns. Now, to start with, it would be a small concern, or else require an everlastingly big plant, to permit boiling for six hours. And even if such a long process were practicable, would it not weaken the fibre? Furthermore, it would kill any lustre and return a dead or lifeless yarn. I think it is pretty well accepted that scouring solutions require a temperature of 140 to 160 deg. F.

Now about caustic alkali. A 2 per cent. solution dissolves wool completely. No matter how little is used it must be injurious in proportion; it will reduce the weight and weaken the yarn. Such a treatment would leave a pulpy substance after a six-hour bath, but not a good healthy yarn. Again, soda ash may not be anything like as harmful, but it certainly causes a shrinkage in weight and strength, and has another disadvantage in giving a yellow tint, which is not desired if the yarn is wanted for light shades.

Resin is a poor article to use on yarn and very difficult to get rid of; in trying to remove it the yarn is again strained. It forms a coating on the fibre and if the yarn is to be dyed in tints an uneven color is the result. The Kenyon method may be a good stripper, but it is not a good oxidizer. No doubt the resin is used to strengthen the fibre after so severe a treatment.

Scrutator.

An Act of Edward III. forbade "plowmen, carters, shepherds and such like, not having forty shillings value in goods and chattels," from wearing any sort of cloth but blanket and russet lawn of twelve pence, and "shall wear girdles or belts; and they shall only eat and drink suitable to their stations."

WEST AFRICAN DYEING.

BY A. DYER.

The British Cotton Growing Association's exhibits on view at the Manchester Town Hall possess not only general interest to those directly or indirectly connected with the cotton trade, but additional and special interest to the dyer and printer. The chief interest for the textile colorist lies in the many specimens of colored cloths made by the African natives from their own and European cottons. Close examination of these examples of primitive methods of dyeing is prevented by the enclosure of the specimens in glass cases, but one may readily observe that the general texture of the cloths is coarse and that the coloring occurs principally in stripes of various widths, although there are some peculiarly interesting bandana effects. The coarser cloths are made entirely from native materials, the yarn being spun from indigenous cotton, dyed, and hand-woven. The finer ones are made from shirtings of European manufacture which are sent out grey or partially colored and dyed by the natives in grotesque designs. In other cloths European-dyed yarns, especially silk noil waste, are used either by themselves or with native yarns.

There is a fine exhibit of a cloth of a pleasing design made in the Niger country from native yarn, and a European magenta-dyed noil. The predominance in the decoration of these fabrics of a dark blue, presumably indigo, is at once apparent. Dyeing by the natives of these countries—Lagos, Niger, and Dahomey—seems, indeed, to be confined mainly to the use of a crude form of indigo. There are, however, other colors than blue in the native country cloths of Sierra Leone, such as orange and red. As far as observation alone may lead one to conclude, the orange used seems to be a chrome orange and the red alizarin or Turkey, both of which are most probably European dyed and sent there in the yarn.

The primitive methods adopted by the natives in the coloring of cloths for their wearing apparel, contrasted with our quicker and more scientific methods, are particularly interesting to the colorist. The spun yarn is dyed both for the warp and the weft of the cloth, the former being sized before weaving. The sizing of grey and dyed warp yarns is accomplished by using a native wheaten flour, which is kneaded with water and the dough rubbed with the fingers to separate the starch from the gluten. The latter is thrown away and the liquor holding the starch in suspension is boiled in pans to make a paste of the desired consistency. Sometimes a kind of rice gruel is employed.

As the home-made cloths are usually in narrow lengths of about three yards, the threads of yarn intended for the warp of the cloth are only a little over that length. For sizing they are stretched at full width between canes and the size-paste "whitewashed" on, as it were, both sides being treated and then allowed to dry. After weaving, if the cloth is to be dyed, the starch is removed by soaking in water and rubbing the cloth vigorously with the hands. The natives do not seem to be partial to "self" colors, so besides stripes of blue and grey, grey cloth is often treated so as to yield a design of some sort by the sinking of beads or seeds in the cloth and tying them round with string to produce the bandana effects referred to.

The preparation of the indigo vat for dyeing yarns and cloth is a process occupying many weeks. It is conducted without any regard to the quality of the materials and water used, about which Europeans are so particular, considerations of this sort being a matter of sublime indifference to the native dyers, which may account in some measure for the general lack of brilliancy in their productions. For dyeing the dark blues they employ a native and crude form of indigo in fermentation vats, and are quite ignorant of ferrous sulphate and its properties in their preparation. They bring about conditions favorable to the evolution of free hydrogen by means of fermentation excited by the addition of certain calcareous earths and crude soda ashes along with some substances containing saccharine (such as fruits and fruit rinds) to the indigo in presence of water. The vats are usually oval-shaped earthenware vessels of a capacity of about sixty gallons.

For the starting of a vat of this capacity

about four pounds of crude lime is put into the water and stirred at regular intervals throughout one day, and a similar addition is made the next day; at the end of four or five days, with daily attention in the matter of stirring, are added about six gallons of liquor from an old vat, more calcareous matter and home-made treacle. The regular agitation is scrupulously continued for another four or five days, when the bottoms and refuse are taken from the vat and replaced by further measures from the old vat and additions of treacle and lime.

As before, the liquor is stirred with precise regularity during the next four days, the refuse again taken out, and further and similar additions made, with attention, for another four days. The last operations are again repeated, and after the lapse of a few days the liquor assumes a pale green color, upon the appearance of which a small quantity of crude indigo made into paste with water is put in the vat. More treacle is added and successive additions made of the various ingredients at intervals of four days, until a reddish black froth appears on the surface of the liquor. On the liquor itself appearing golden yellow, then and only then is the vat considered by the native ready for use. The yarns and cloth are dyed by immersions in the vat, according to the depth of shade required. The cloths are usually finished in a starch paste similar to that employed for yarns.

The methods adopted for the reduction of the indigo constitute a series of interesting chemical changes. The saccharine of the treacle or raw sugar is first converted into grape sugar, the latter afterwards into lactic acid. Lactic acid again breaks up into butyric acid, carbon-dioxide, and nascent hydrogen, which is essential for the production of the soluble indigo-white. The preparation of the vat in this way requires no small experience and knowledge if it is to be kept in condition. It easily gets out of order by careless manipulation, and is then very difficult to put right. Some of the natives are really very expert in this respect, and show the possession of a commendable amount of persistent patience.—Manchester (Eng.) Guardian.

A DYEING MACHINE FOR SHADED EFFECTS.

The machine shown in the accompanying illustrations has recently been patented in Germany and is intended to produce shaded effects on cloth by applying the dye liquor to the fabric by means of revolving brushes. Fig. 1 is a longitudinal section and Fig. 2 a front view of the machine. The brush,

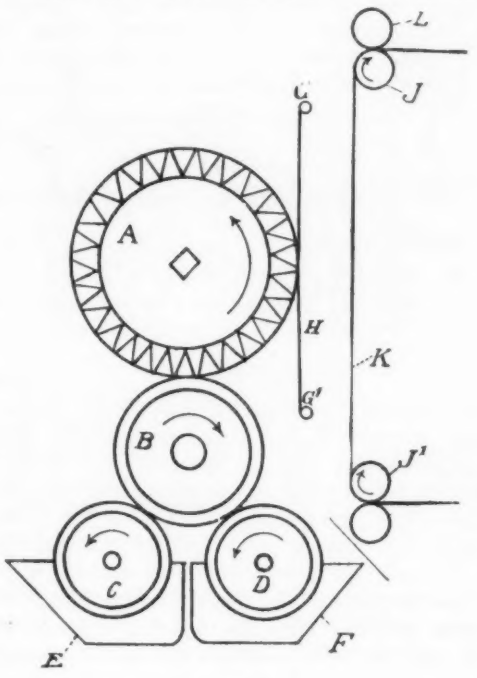


FIG. 1.

A, takes up the dye liquor from the roll, B, which in turn receives it from the smaller rolls, C and D. Each of the latter consists of a number of small drums, C^1, C^2, C^3, fastened on a shaft and so arranged that the drums on shaft D, deliver the color to that part of the transfer roll, B, which does not come in contact with the color drum, C. Each of the two sets of drums, C and D, runs in a separate color tank, E and F, which is supplied with any color desired. The brush, A, comes in contact with a wire cloth, H, stretched between the rods, G and G^1. The mesh of the wire cloth is about 1/5 inch, and behind it the cloth to be dyed, J, passes over the rollers, J^1 to J and L. The brush

throws the dye through the screen to the cloth, which is then run between the squeeze rolls, J and L.

The speed of the cloth is varied according to the effect desired, but is less than the surface speed of the brush. The contact of the brush with the screen causes a fine spray of dyed liquor to be thrown on the cloth.

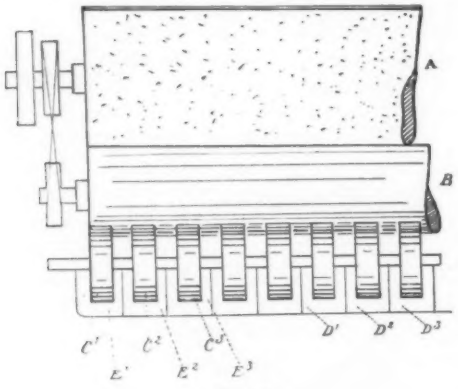


FIG. 2.

By varying the strength of the liquor in the two troughs, E and F, a shaded effect can be obtained. Other variations can be obtained by varying the distance between the wire cloth and the fabric to be dyed. One color roll can be used in place of two, in which case the drums are smaller and placed closer together. In place of the wire cloth a fine rack may be used.—Oesterreich's Wollen und Leinen Industrie.

DYEING BLACK ON HOSIERY.

The following is a summary of the best methods for black-dyeing stockings and is brought up to date. Very cheap stockings are just dyed with a direct deep black, such as Pluto Black Extra, Patent Dianil Black, Oxydiamine Black, Columbia Black, etc. Dye at the boil one hour with carbonate of soda, soap and common salt. The stockings are often given an oil bath after dyeing to improve their appearance. They are then dried in a stretching frame. Such dyeings are not, however, fast to washing. It is expected of a good stocking, the so-called "first-class English quality," that it should be fast to washing, perspiration and rubbing, and also that it should be a deep full black. Chromed dyeings fulfil these requirements better than substantive dyeings. The number of dyes suitable for our purpose is not great. When we have named the brands of Benzo Chrome Black and Benzo Chrome Blue Black, Columbia Black FB, and Diamond Deep Black SS, we have a good selection. Dye at the boil one hour with common salt and carbonate of soda, rinse well, and after-treat with bichromate and sulphate of copper, and sulphuric or acetic acid. Even these dyeings are not absolutely satisfactory. In the first place, the depth of the color leaves something to be wished for, and, in the second, the after chroming hardens the cotton, which has to be softened by soaping.

A far more useful method is to diazotize, using for example, Diamine Nitrazol Black B, diazotizing and developing with developer A, or Diaminogene B, diazotizing with Diamine and beta-naphthol. The method is as follows: Dye one hour at the boil with common salt and carbonate of soda, rinse well, and diazotize cold with 2.5 per cent. nitrite and 7.5 per cent. hydrochloric acid. After thirty to forty minutes rinse and develop cold, adding the developer in solution to the bath. The development also lasts thirty to forty-five minutes. Then rinse, soap, rinse and dry.

Aniline black gives even better results. To dye in one bath, dissolve separately 10 per cent. aniline salt, 13 per cent. bichromate and 3 per cent. sulphate of copper, and add them one after another to cold water, just before the bath used. Then enter the stockings and add gradually from 7 to 8 per cent. of concentrated sulphuric acid, previously diluted, stirring all the time. The stockings turn first yellow, then green, then blackish green. At this stage bring the bath slowly to the boil. The black begins to develop at about 60 deg. C. After dyeing rinse well, soap in a soap bath containing a little fat or oil, rinse again and dry. The result is fast to washing and acid, but the fastness to rubbing is scarcely satisfactory.

The solution of the various difficulties indicated in the preceding remarks is to combine the chrome blacks with aniline black. A good black which will not turn green is obtained as follows: Dye first with 1.8 per cent.

Columbia Black FB, 1.8 per cent. Benzo Chrome Blue Black B, 1 per cent. carbonate of soda and 20 per cent. Glauber's salt. Rinse and enter into a bath composed of 4 per cent. bichromate of copper, 3 per cent. aniline salt and 8 per cent, concentrated sulphuric acid.

Sulphur-blacks can also be topped with aniline. Dye first with about 5 per cent. of a concentrated sulphur-black such as Immedial Black H extra, Thiogene Black M conc., Sulphur Black T extra. Rinse and top with aniline as above described. Silk dyeings are fast to washing, rubbing and acids.

Nowadays stockings are mostly dyed with oxidation aniline black, which is preferred to all others. It is quite impossible to prevent occasional injury to the fabric in this method of dyeng, but it has so far no dangerous rival, although sulphur black may be one some day. Non-bronzing sulphur dyes are very good for stockings, and give shades quite as deep as those obtained with oxidation aniline black.

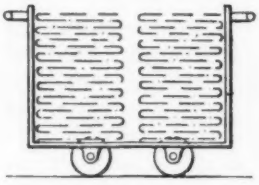


FIG. 1.

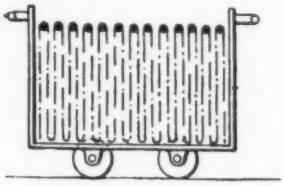


FIG. 2.

The most suitable stocking dyes are Thiogene Black MM conc., and Thiogene Black M liquid. On an old bath use 10 to 12 per cent. Thiogene Black MM conc., 24 per cent. sodium sulphide, 3 per cent. carbonate of soda, 1/2 per cent. Turkey red oil and 5 per cent. common salt. Boil fifteen minutes at the boil and forty-five in the slowly cooling bath, taking care that the stockings are guarded from exposure to the air during the dyeing by keeping them constantly immersed. After dyeing, wring and rinse first in a warm carbonate of soda bath and then in water. The Turkey-red oil and the soda rinsing are both essential for producing good fastness to rubbing. After rinsing, centrifuge, oil slightly and dry. The expense of this method is somewhat greater than with oxidation aniline black, but there is no risk of any damage to the goods, and the dyeing process is much less complicated.

Yet another plan is to combine the sulphur blacks with logwood. As much as 3 per cent. of logwood extract can be added to the sulphur bath, and then, after dyeing, the logwood share of the black can be produced with pyroligneate of iron. After rinsing, soaping and rinsing again, we get a black which is even superior to aniline black, and is quite as fast to rubbing, if the dyeing is in skilled hands, as oxidation aniline black. It is also very fast to perspiration, washing and acid. One great advantage of the use of sulphur blacks in stocking dyeing is that they permit of machine dyeing, and therefore a large output and much saving of wages.—Deutsche Faerber Zeitung.

NEW PROCESS OF BLEACHING CLOTH.

A recent issue of Oesterreich's Wollen und Leinen Industrie contains the following description of a bleaching machine designed for a new process of bleaching cotton cloth:

One serious objection to former processes of bleaching cotton goods with chlorine in a vacuum in rope form has been the liability of streaks and wrinkles, which frequently develop into serious defects in the subsequent processes. Moreover the fabric is very likely to become twisted out of shape, necessitating later much labor and expense with the result that the difficulty is but partially removed. These difficulties can be avoided only by handling the goods in the open width, free from folds or wrinkles. The advantage of the open width form in the processes preparatory to bleaching is well recognized.

Another advantage of handling in the open width during bleaching is that the bleaching agent affects all parts of the cloth uniformly. This results not only in a more uniform, but also in a more efficient bleach. When the goods are bleached in rope form

the bleaching agent attacks the exposed portions of the goods more energetically and in order to bleach the inner portion of the material the exposed part is often seriously injured. By the new process, however, a much stronger bleaching agent can be used without danger of injuring any part of the goods. The bleaching action of the chlorine can be increased by introducing oxygen into the bleaching chamber; liquid air can also be used for the same purpose. As soon as the liquid air enters the vacuum chamber it evaporates and exerts its well-known bleaching action on the goods.

Figs. 1 and 2 show the trucks loaded with cloth ready for bleaching, the folds in one being horizontal and in the other perpendicular. Fig. 3 is a perpendicular section, and Fig. 4 a plan of the machine. The trucks loaded with goods are run into the chamber, 3, which is then closed by an air-tight door, 20. The bleaching chamber is connected by a pipe, 4, with the vacuum chamber and an air pump, 5, by which the vacuum is obtained in the chamber, 3. Underneath are two tanks, 6 and 7, Fig. 4, one for chlorine and the other for acid. These are connected with the upper chamber, 3, by pipes in such a way that chlorine or acid can be introduced into the chamber, 3, through a perforated pipe at both top and bottom.

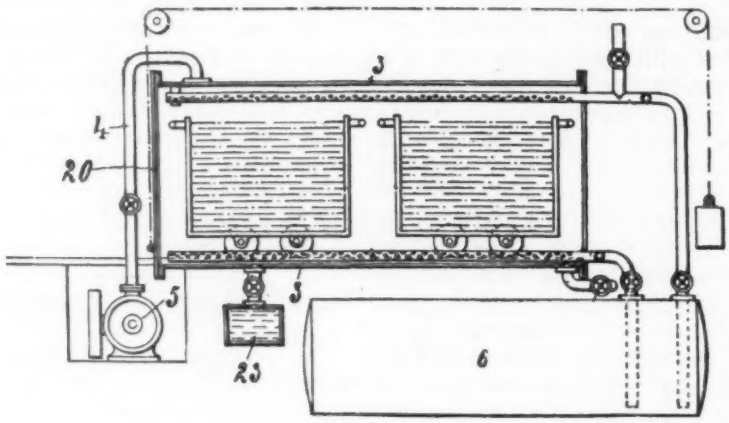


FIG. 3.

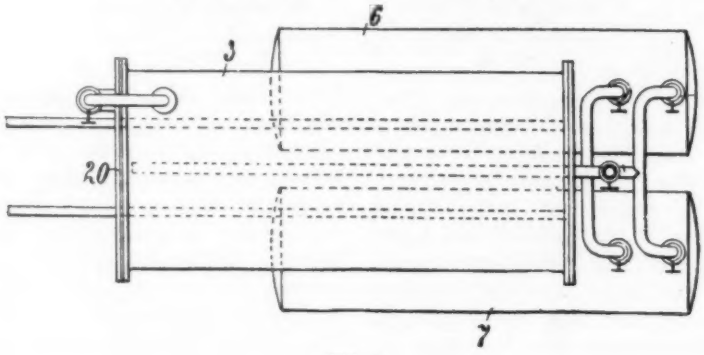


FIG. 4.

A draw pipe and valve are also provided and when liquid air is used it is stored in a tank, 23, and then admitted to the chamber as desired.

Owing to the development of the cotton spinning industry in Japan, the imports of cotton yarn dropped from $4,825,980 in 1890 to $374,220 in 1903.

New Color Cards.

Azo Chrome Blue T and TB; Cassella Color Co., New York city.

A folder showing three samples of woolen piece goods dyed with Azo Chrome Blue T and TB. One of the samples has white striping threads that are not colored by the dye.

Hyraldite A, Pat.; Cassella Color Co., New York city.

A card with six samples of woolen piece goods showing the original cloth, the same cloth after being stripped with Hyraldite A, and again after redyeing with another color. Full working directions are given.

Wool Dyeing; Cassella Color Co., New York city.

This is another of those works on dyeing issued by these manufacturers of dyestuffs which are worthy to be classed among technical rather than trade literature. Numerous dyeing formulas are illustrated with samples of the dyed goods.

Anthracene Chrome Black PF; Cassella Color Co., New York city.

Ten samples of loose wool, slubbing, yarn and piece goods dyed with various percentages of Anthracene Chrome Black PF, for which full directions are given.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation Subscription price for the Dyers' Supplement $1.00 per year

Recipe No. 177.

Green on Cotton Yarn.

Pyrogene Green 3 G on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Pyrogene Green 3 G.
(A. Klipstein & Co., 122 Pearl St., New York.)
5 lbs. Sodium Sulphide Crystals.
4 lbs. Soda Ash.
25 lbs. Common Salt.

Enter at just below the boil and dye at a boiling temperature for one hour.

In the standing bath three-fifths to two-thirds of the original amount of dyestuff is all that is necessary.

Pyrogene Green 3 G possesses excellent fastness to boiling acid and also good fastness to light.

Recipe No. 178.

Bluish Red on Cotton Yarn.

Thiogene Rubine O on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thiogene Rubine O.
(H. A. Metz & Co., 122 Hudson St., New York.)
20 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
30 lbs. Common Salt.

Dissolve the dyestuff and sodium sulphide separately, then add to the dye bath containing the soda ash, boil up and finally add the common salt.

Dye at a boil for one hour, squeeze, rinse and dry.

Thiogene Rubine O has the distinction of being the nearest approach to a sulphur red that has as yet been put upon the market.

Recipe No. 179.

Green on Cotton Yarn.

Mercaptol Green B on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Mercaptol Green B.
(Walter F. Sykes & Co., 85 Water St., New York.)
20 lbs. Sodium Sulphide Crystals.
10 lbs. Soda Ash.
50 lbs. Common Salt.

Dissolve the color and sodium sulphide separately and add to the bath to which the soda ash has already been added. Then add the common salt, and proceed with the dyeing as usual for sulphur colors.

In standing kettles about two-thirds of the above amount of dyestuff is all that is necessary.

Mercaptol Green B is a new sulphur color which produces shades of remarkable fastness to scouring, fulling and light.

Recipe No. 180.

Basic Yellow upon Sumac Mordanted Cotton Yarn.

Thioflavine T on 100 lbs. Sumac Mordanted Yarn. Mordant the yarn according to Recipe No. 95, and then dye with

½ lb. of Thioflavine T
(Thos. Leyland & Co., 53 India St., Boston.)

according to the usual method of basic colors.

The clearness and value of Sumac Extract S S is well illustrated by this dyeing.

Recipe No. 181.

Blue on Worsted Yarn.

Alizarine Blue R on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Alizarine Blue R.
(American Dyewood Co., 156 William St., New York.)
4 lbs. Acetic Acid.

Enter yarn at 120° F., raise slowly to the boil and dye at a boiling temperature for one-half hour. Then add

2 lbs. Sulphuric Acid

and boil twenty minutes longer. Then add

1½ lbs. Potassium Bichromate

and continue the boiling for one-half hour longer, when the dyeing is completed.

Alizarine Blue R is exceedingly fast to milling and light.

Recipe No. 182.

Yellow on Worsted Yarn.

Fast Yellow T on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Fast Yellow T.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston.)
10 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

Fast Yellow T is exceedingly fast to light and also possesses good fastness to milling.

Recipe No. 183.

Brown on Cotton Yarn.

Immedial Cutch B G on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Immedial Cutch B G.
(Cassella Color Co., 182 Front St., New York.)
10 lbs. Sodium Sulphide.
4 lbs. Soda Ash.
25 lbs. Common Salt.

Enter at just below the boil and dye boiling hot for one hour, upon either straight or bent sticks, squeeze off, rinse and dry. It is best to do the dyeing in an ordinary wooden vat, provided with squeeze rolls and with 20 to 25 times as much water as there is material being dyed.

Immedial Cutch B G possesses good level dyeing properties, and the excellent properties characteristic of the sulphur colors. It requires no after treatment, although an after chroming slightly deepens the shades produced, and somewhat improves their fastness.

Recipt No. 184.

Black on Woolen Yarn.

Chrome Black M on 100 lbs. woolen yarn. Prepare the dye bath with

5 lbs. Chrome Black M
(Read Holliday & Sons, Ltd., 7 Platt St., New York)

previously dissolved in boiling water,

10 lbs. Glauber's Salt,
⅓ lb. Acetic Acid.

Enter cold to lukewarm, raise the bath gradually to a boil and continue at the boil from one-half to one hour, according to the nature of the goods. If the dye bath is not exhausted, add one-half to one pound D. O. V. and boil fifteen minutes longer, then add up to two pounds bichrome and boil from twenty to thirty minutes. The bichromate should not be added until the bath is exhausted, else the shade is liable to rub.

Chrome Black M possesses remarkable fastness to light, alkalies, acids and milling.

Recipe No. 185.

Sumac Extract upon Bleached Cotton Yarn.

Sumac Extract S S on 100 lbs. bleached cotton yarn. Prepare the mordanting bath with

10 lbs. Sumac Extract S S
(Thomas Leyland & Co., 53 India St., Boston)

and the necessary amount of water.

Enter material into the boiling bath and work at a boil for fifteen minutes, then allow the bath to cool slowly, and if possible allow the material to steep in the bath over night.

Wring without washing and then work for twenty minutes in a cold fixing bath made up with

2 lbs. Tartar Emetic

and the necessary amount of water.

Sumac Extract S S will be found to be a very clear product and will prove very valuable to the calico printer and in the dyeing of clear shades with basic colors.

Recipe No. 186.

Black on Worsted Yarn.

Cashmere Black 3 B N on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Cashmere Black 3 B N.
(Farbenfabriken of Elberfeld Co., 40 Stone St., New York.)
20 lbs. Glauber's Salt.
15 lbs. Sodium Bisulphate.

Enter at 180° F. and dye at a boil for one and one-half hours.

Cashmere Black 3 B N gives a fine, bloomy shade of black, which possesses good fastness to light, acids and alkalies. It does not dye white cotton checking threads.

Recipe No. 187.

Green on Worsted Yarn.

Domingo Chrome Green W on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Domingo Chrome Green W.
(C. Bischoff & Co., 88 Park Pl., New York.)

4 lbs. Sulphuric Acid.
30 lbs. Glauber's Salt.

Enter yarn at 140° F. and dye at a boil one hour, or until the dye bath is exhausted.

Then add after chrome with

3 lbs. Potassium Bichromate

and

2 lbs. Acetic Acid

for one-half hour.

Domingo Chrome Green W possesses the valuable properties and fastness of the mordant acid colors.

Recipe No. 188.

Yellow on Cotton Yarn.

Pyrogene Yellow 3 R on 100 lbs. cotton yarn.

10 lbs. Pyrogene Yellow 3 R.
(A. Klipstein & Co., 122 Pearl St., New York.)
5 lbs. Sodium Sulphide.
4 lbs. Soda Ash.
25 lbs. Common Salt.

Enter at just below the boil and dye at a boiling temperature for one hour.

In the standing bath three-fifths to two-thirds the original amount of dyestuff is all that is necessary.

Pyrogene Yellow 3 R possesses better fastness to chlorine than most sulphur colors and its fastness to light is also very good.

Recipe No. 189.

Black on Worsted Yarn.

Domingo Alizarine Black G on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Domingo Alizarine Black G.
(C. Bischoff & Co., 88 Park Pl., New York.)
5 lbs. Acetic Acid.
15 lbs. Glauber's Salt.

Enter at 140° F. and dye at a boil for one hour, adding a little sulphuric acid toward the end if thought necessary to exhaust the color completely.

Then aftertreat one-half hour in a separate bath, or equally well in the same bath to which

2 lbs. Potassium Bichromate

has been added.

Domingo Alizarine Black G possesses the valuable properties characteristic of the mordant acid colors.

Recipe No. 190.

Green on Cotton Yarn.

Thiogene Green G G on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thiogene Green G G.
(H. A. Metz & Co., 122 Hudson St., New York.)
15 lbs. Sodium Sulphide Crystals.
5 lbs. Soda Ash.
30 lbs. Common Salt.

Enter at just below the boil and dye at a boiling temperature for one hour.

Thiogene Green G G is a new sulphur color giving clear green shades of excellent fastness to light and acid. On account of its good solubility it is well adapted to the dyeing of all classes of cotton goods.

Recipe No. 191.

Brown on Cotton Yarn.

Immedial Brown B R on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Immedial Brown B R.
(Cassella Color Co., 182 Front St., New York.)
10 lbs. Sodium Sulphide.
4 lbs. Soda Ash.
25 lbs. Common Salt.

Enter the material just below the boil and dye at a boiling temperature for one hour, upon either bent or straight sticks. Squeeze off, rinse and dry. It is best to do the dyeing in an ordinary wooden vat provided with squeeze rolls and with 20 to 25 times as much water as there is material being dyed.

Immedial Brown B R possesses good level dyeing properties and the excellent properties characteristic of the sulphur colors. It requires no after treatment although an after chroming slightly deepens the shades produced and somewhat improves their fastness.

Recipe No. 192.

Chrome Black G G on 100 lbs. Woolen Yarn.

Chrome Black G G on 100 lbs. woolen yarn. Prepare the dye bath with

5 lbs. Chrome Black G G
(Read Holliday & Sons, Ltd., 7 Platt St., New York City.)

previously dissolved in boiling water.

10 lbs. Glauber's Salt,
½ lb. Acetic Acid.

Enter cold to lukewarm, raise the bath gradually to a boil and continue at the boil from one-half to one hour, according to the nature of the goods. If the dye bath is not exhausted add 1/2 to 1 pound D. O. V. and boil 15 minutes longer, then add up to 2 lbs. bichrome and boil from 20 to 30 minutes. The bichrome should not be added until the bath is exhausted, else the shade is liable to rub.

Chrome Black G G possesses remarkable fastness to light, alkalies, acids and milling.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

Connecticut, South Norwalk. Herman Haehnel, formerly superintendent and manager for Boesse, Peppard & Company, will start a plant for manufacturing lace. Work has begun remodeling a large barn for the proposed plant.

*Georgia, Acworth. The Acworth Cotton Mfg. Co. is just completing brick work on their new building and have not yet purchased any machinery. They propose making hosiery yarn, with equipment of about 5,000 spindles, but have not yet fully determined on this. Orlando Awtrey is president of the company and J. J. Northcutt, treasurer.

North Carolina, Charlotte. The Charlotte Damask Manufacturing Company has been organized with capital stock of $125,000. A specialty will be made of fine table cloths. Edward Carson will be secretary and treasurer of the new company.

*North Carolina, Charlotte. The South Atlantic Waste Co., capitalized at $125,000, has started work on the erection of the new buildings, which will be as follows: one 40 by 100, one story; one 60 by 100, two stories; and two, 50 by 100, one story. D. H. Anderson is president of the company; J. W. Todd, treasurer; L. A. Lockwood, general manager, and L. A. Lockwood, Jr., superintendent. They contemplate starting operations about January, 1906, making cotton waste.

North Carolina, Graham. The Leota Cotton Mills Co. have been incorporated with capital stock of $125,000. J. Harvey White, president, and J. V. Pomeroy, treasurer. They will manufacture yarns, 12s to 16s at present, operating 1,248 ring spindles. The above company has taken over the plant of the Voorhees Manufacturing Co., which has been in the hands of receivers, and has equipment of 1,248 spindles and 136 looms.

*North Carolina, Greensboro. The new building for the Pomona Cotton Manufacturing Co. is nearly completed and it is expected to have the plant ready to start operations early in January.

*North Carolina, Roanoke Rapids. We have been advised by the Roanoke Rapids Power Co. that they are organizing a spinning mill with a capital of $500,000 in connection with their new power development at this place; but the new plant will not be built before spring, at which time the power development will be completed.

Pennsylvania, Allentown. Application for a charter has been made by the Allentown Lace Co., which will occupy buildings of the Allentown Hardware Works, sold to Lewis R. Brown, of Philadelphia. Lace curtains will be made.

*Rhode Island, Davisville. Operations have been started in the Sylvania Mills, making cotton wrapping twine. Leonard P. Davis is president of the company and F. W. Midgley, agent and superintendent. Plant is equipped with 8 cards, 2 speeders, 2 spoolers, 4 twisters, 2 reels and cone winder. Product is sold direct.

*South Carolina, Iva. The work has been started on erection of the new buildings for the Jackson Mills, capitalized at $325,000. The plant will be equipped with 21,000 spindles and 650 looms for making 3-yard and 4-yard goods. Goods will be sold through Jas. E. Mitchell Co.

Enlargements and Improvements.

Alabama, Anniston. The Adelaide Cotton Mills are to double capacity of the plant by adding 5,000 more spindles in the near future.

Alabama, Athens. The Athens Cotton Mills Co. is building an addition, 60 by 90 feet, and will install 2,500 spindles. Expect to have same completed in the early part of the year.

*Alabama, Jacksonville. The Ide Cotton Mills, which started their machinery about April, 1905, 6,000 spindles, have placed order for 5,000 more spindles, making a total of 11,000, which they expect to have in operation about February, 1906. They are increasing size of mill village by erection of 20 additional operatives' houses. The mill is a two-story brick building, 75 by 280 feet, well equipped with latest machinery. A. H. Robbins is the superintendent.

Alabama, Talladega. The Chinnabee Cotton Mills are installing 8 Howard & Bullough spinning frames, 204 spindles each.

Connecticut, Middletown. The Russell Manufacturing Co. has placed a repeat order for spinning frames with the Howard & Bullough American Machine Co., Pawtucket, R. I.

Connecticut, Moodus. A new water wheel has been installed in the A. E. Purple twine mill.

*Connecticut, Willimantic. The Windham Silk Company will not start work on erection of their new mill before next spring.

Georgia, Athens. The Star Thread Mills are making arrangements to make extensive improvements to the plant next year, whereby capacity will be doubled. About 5,000 spindles will be added and electricity installed for motive power.

Georgia, Banning. A knitting plant has been started at this place by the Hutcheson Manufacturing Co., to manufacture infants' and misses' cotton hose. Charles A. Ricks is superintendent of the plant. They have just added a dye house, equipment for which was furnished by the O. & P. Rothe Mfg. & Supply Co., Ltd. The latter part of October they started the finishing and a representative of the Textile World Record received the first pairs finished.

*Georgia, Columbus. Work has begun on erection of the new building for the Swift Manufacturing Co.

*Georgia, Columbus. The new addition for which contract has been let by the Swift Manufacturing Co., will be equipped with 5,000 spindles and 100 looms.

*Georgia, Fitzgerald. Most of the machinery has been received and will soon be set up in the new addition to the Fitzgerald Cotton Mills.

*Georgia, Rome. Ground has been broken for the addition to the Anchor Duck Mills, previously reported to add 7,000 more spindles to the plant.

Georgia, Sargent. The Wahoo Manufacturing Co. is making great changes in their machinery, taking out old and replacing with new machinery. They have just installed a new engine and also a new water wheel.

*Massachusetts, Fall River. The Seaside Mills and the Maplewood Mills, J. H. Estes & Sons, will be merged into one company with capital stock of $250,000. John H. Estes will be president of the company; J. Edmund Estes, treasurer, and Paul A. Schultz, general manager and superintendent. An addition three stories high is being built to the Maplewood Mills, where machinery will be removed.

*Massachusetts, Fitchburg. The Grant Yarn Company has awarded all contracts for the new building which they will erect and have completed about Jan. 15th. Will install 1,000 ring spindles for coarse yarns, 8 to 16.

Massachusetts, Great Barrington. The Riverdale Mills have installed 16 new looms in the plant for weaving towels.

*Massachusetts, North Abington. The Victory Webbing Company has started work on the erection of the new addition to their mill, which will be 115 feet long, 2 stories and basement. They will install 52 new looms and expect to have same in operation about Feb. 15th. They will make a new line of silk goods..

Massachusetts, Worcester. An addition, 42 by 81 feet, two stories, for which contract has been let, will be built to the L. D. Thayer Manufacturing Co.'s plant.

New Jersey, Jersey City. Work has been started on erection of a new building for the Hall Lace Co., capitalized at $100,000. R. E. Schneebeli is president of the company and Thomas H. Hall, treasurer and general manager. Laces, veilings and nettings are made.

North Carolina, Asheville. An addition, 16 by 62 feet, has been built to the picker house of the Asheville Cotton Mills. New picker machinery and additional spindles, 1664 (ordered), will be installed.

*North Carolina, Charlotte. Work has been started on erection of new addition to the Magnolia Mills, which contemplates starting same in December. They will add 2048 new spindles which will give total of 6144, making carded Peeler Splicing yarns, 40, 50, 60/1.

North Carolina, Goldsboro. Contracts have been placed by the Borden Mfg. Co., for additional spinning frames to be installed in the mill.

Rhode Island, Central Falls. The J. & P. Coats Co., Ltd., contemplates erecting an electric power plant here for generating heat, light and power, on property adjoining the large mills now in operation, and asks for exemption from taxation on building and equipment for ten years.

Texas, Denison. The Denison Cotton Mills have placed an order with the American Moistening Company (Boston, Mass.), for the complete equipment of their mills with humidifiers.

Tennessee, Knoxville. The Brookside Mills have placed a repeat order for speeders with the Howard & Bullough American Machine Co., Pawtucket, R. I.

Mills Starting Up.

*Alabama, Alexander City. We learn that the Alexander City Mills will probably be started up in the spring of 1906. The machinery is ordered and the product will be sold by C. E. Riley & Company of Boston and Philadelphia.

*Alabama, Huntsville. Captain Milton Humes has purchased the Madison Manufacturing Company's cotton mill at recent auction sale. After the plant has been thoroughly overhauled operations will be resumed by Captain Humes.

*South Carolina, Walterboro. Operations have been resumed in the Walterboro Cotton Mills, formerly known as the Colleton Cotton Mills. The new company is capitalized at $100,000; John F. Lucas, president; Julian Mitchell, secretary and treasurer and James T. McGregor, superintendent.

*Texas, Denison. Work has begun testing the machinery at the Denison Cotton Mill preparatory to putting the machinery in operation. Yarns only will be made.

WOOLEN.

New Mills.

*Connecticut, Central Village. The Plainfield Woolen Company, reported to operate the small brick mill adjoining, will equip same with a new 100 h. p. engine and one 160 h. p. boiler, 5 sets cards, and six mules, 384 spindles each. Woolen yarns will be made for the Central and Mapleville Mills, under name of the Central Yarn Company.

*Connecticut, East Willington. Bernard Makover, of the B. Makover Co., recently reported having purchased the Daleville Mill property, is organizing a company to be known as the Connecticut Woolen Mills Co., which will operate same.

*Connecticut, Norwich. A new company will be formed by John A. Moran, Phillip Henault and John Campbell, to operate the Preston Silk Mill property on woolens. Repairs are to be made to the building. It is expected that operations will begin shortly with 35 looms and 6 sets carding and spinning machinery.

*Massachusetts, Adams. The Adams Woolen Company is making extensive additions and altera-

tions to the plant. New spinning machinery is being installed and the machinery in the card room overhauled and new attachments and up-to-date appliances put in. Work is also under way on erection of a new engine house. Geo. E. Sayles has succeeded James C. Chalmers as treasurer of the concern.

*Massachusetts, Lawrence. The brick work on the new Wood Worsted Mill has been started. The main building will be 1434 by 123 feet, six stories high, with separate boiler house 104 by 300 feet, and engine house.

*New Jersey, Garfield. Work is well under way on the new structure for the New Jersey Worsted Spinning Company's plant. This concern is capitalized at $1,000,000; E. Ruckdeschel, president; C. Bahnsen, treasurer, and Rudolf Kleinjung, agent and superintendent. They propose having the plant ready to start operations next spring.

*New Jersey, Little Falls. The Little Falls Carpet & Rug Mills have been incorporated with capital stock of $25,000. W. R. Hudson, Cornelius Koopman and Albin Smith of Paterson, N. J., are mentioned as interested.

*New Jersey, Trenton. Operations will start February 1st in the new plant being established here by Neary & Schwartz, manufacturing worsted goods.

Pennsylvania, Norristown. The Carol Manufacturing Co., with a capital of $10,000, has been incorporated with Joseph J. Greer; Joseph Greer and James McMaster. The company will manufacture rugs and carpets.

Pennsylvania, Philadelphia. A plant for the manufacture of cotton worsteds on 10 looms, has been started up in the Davenport Mills at Mascher and York Sts., by Edward Riley. He is using 2/20, 2/26 and 2/30 cotton yarn selling the goods direct.

*South Carolina, Columbia. The American Press Cloth Co. will start operations about Dec. 15th, making camel's hair press cloth for hydraulic presses. This company is capitalized at $50,000, with John J. Seibels, president and treasurer; A. F. Parker, superintendent, and B. F. Taylor, buyer. Plant is to be equipped with 4 broad and 4 narrow looms, and steam and electricity.

*Texas, Dallas. A new stone building will be erected for the Texas Rug and Renovating Co., for manufacturing rugs. D. A. Lingo is president of the company and D. C. Lingo, treasurer. Plant will be equipped with seven looms. The necessary equipment has not all been secured.

Enlargements and Improvements.

Connecticut, Danielson. The Danielson Worsted Co. has installed two additional looms in the plant. This gives the plant a total of 13, which are operated day and night.

Connecticut, Mechanicsville. The French River Textile Company is installing 25 Crompton & Thayer looms in the plant. Later they contemplate adding 25 more.

Connecticut, Norwich. The Reliance Worsted Company, which has been increasing the number of looms, now operates a total of 61.

Georgia, Rome. The Rome Hosiery Mills have been very successful and the demand has been steadily increasing for their cotton seamless hosiery. H. R. Berry, treasurer and general manager, stated that the capacity of the plant will be increased by ordering new machinery to double capacity.

Maine, Corinna. Extensive changes and additions are being made to Chas. A. Greenwood's mill.

*Maine, Dexter. Work is nearing completion on the Amos Abbott Co.'s new dye house.

Maine, Dexter. The Morrison Woolen Co.'s mills have been closed for a few days for repairs owing to breaking of engine at the upper mill. The engine from the lower mill is to be removed to the upper and a new one installed in the latter plant.

Maine, Lewiston. Work is well under way on a new addition to the Columbia Mills, which will greatly increase capacity of the plant.

*Maine, Lisbon Centre. It is expected that the addition under way to the Farnsworth Co.'s plant will be completed January 1st. The ground floor of the new four-story building under construction will be used for machine and repair shops; the second floor for weaving, and the third and fourth for spinning. Adjoining is the new picker house and dye house.

*Maine, Skowhegan. The Maine Spinning Company has completed installation of the additional machinery, practically doubling capacity of the plant.

Massachusetts, Cherry Valley. The Olney Woolen Mill has been closed the latter part of the week on account of defect in the boiler, undergoing repairs. Operations will be resumed Monday morning.

Massachusetts, Franklin. New main shafting is being installed in the Norfolk Woolen Company's mill and the mills will be stopped for a few days.

*Massachusetts, Medway. Operations will be resumed Monday in the Medway Woolen Co.'s plant.

Massachusetts, Saugus. F. Scott & Son, who recently installed a new fulling mill in the plant, are contemplating erection of a new weave shed.

*New York, Philmont. Ground has been broken for a four-story brick storehouse, 100 by 60 feet, into which probably a few heavy machines will be moved to make more room. Material and labor contracts have been closed.

*Ohio, Ravenna. Plans have been accepted by the Cleveland Worsted Mills Co. for the new power house, which include a brick stack, 175 feet high.

*New Jersey, Passaic. Work has been completed on erection of the new spinning mill for the Botany Worsted Mills, and the machinery is being installed.

Pennsylvania, Brookville. The Brookville Woolen Mills have decided to enlarge the building and double capacity, as they have orders re-

quiring double the present capacity, to fill on time.

Pennsylvania, Clifton Heights. The Thomas Kent Manufacturing Co. has started work on erection of another large mill, which will be 210 by 70 feet, two stories, brick. When completed, machinery for making French worsted yarns will be installed. It is expected that the new plant will be ready for operation next summer.

Pennsylvania, Darby. Verlinden Bros., manufacturers of cotton and woolen goods on 7 sets and 150 looms, are contemplating many additions to their plant. Messrs. Geo. A. Glenn & Co., contractors of Philadelphia, are estimating on same.

*Pennsylvania, Philadelphia. We have been advised by the Arkonia Fabric Manufacturing Co. (West Millbury, Mass.), that they will start a branch plant of 22 looms at this place, making dress serges and piece dyes. They will still continue operating the West Millbury plant until lease expires next October, which will be renewed if satisfactory arrangements can be made. Mr. Crenshaw will direct the manufacturing at both plants, and Mr. Sullivan located in New York, with Mr. Samuel Hodgson, will manage the Philadelphia plant.

Pennsylvania, Philadelphia. S. J. Greer of Philadelphia has purchased a number of the Johnson-Dunbar looms, and will install same in his mill, where capacity is to be increased.

Pennsylvania, Philadelphia. Messrs. Bush & Terry, manufacturers of art squares on 7 looms at 2766 Ruth St., have given out a contract for the erection of new mill, 48 by 114 feet, to be erected at the corner of Jasper and Thayer Sts., into which they will remove as soon as it is completed.

Pennsylvania, Philadelphia. The Germantown Spinning Company has ordered a complete equipment of humidifiers of the American Moistening Company, Boston, Mass.

Pennsylvania, Philadelphia. The Shelburne Mills, H Street and Westmoreland Avenue, now operating 100 looms on men's wear, are reported to put in 20 more looms and increase their force of hands to enable them to fill heavy orders which they recently booked.

Pennsylvania, Philadelphia. A contract has been given out by William F. Read & Sons Co. for an addition of two stories to their already large mills at 12th and Jackson Streets. The cost is to be $5,000. The company manufactures silk and wool dress goods on 350 looms. John D. Phillips is the superintendent.

Pennsylvania, Philadelphia. Work has been completed on erection of a new boiler house for H. C. Ball & Co. They are also tearing down portion of their main building and will erect a larger addition.

*Pennsylvania, Tunkhannock. The Winola Worsted Yarn Co., which is to make some improvements to the plant, will take out the elevator and set it up outside, near the boiler room, utilizing the floor space gained for additional machinery to manufacture finer grades of yarns.

*Rhode Island, Providence. Work has been nearly completed on the new addition for the Valley Worsted Mills and the machinery, which has been ordered, will soon be installed.

Rhode Island, Providence. A new mill, 307 by 75 feet, three stories, is to be erected on Branch Ave. for the Wanskuck Co. Plant will be equipped with machinery for manufacturing woolen goods and will be operated in connection with company's other mills.

*Rhode Island, Woonsocket. Operations are expected to start about Jan. 1st in the new addition under construction for the Scotia Worsted Mills.

Mills Starting Up.

*Maine, North Vassalboro. Operations will be started next week in Herbert Peace's shoddy plant, which has been rebuilt in part.

Missouri, St. Joseph. Operations have been resumed in the Buell Manufacturing Company's mill, which has been closed since early summer.

*New York, Waterloo. Operations have been resumed in the Waterloo Woolen Mills, which have been closed for purpose of removing to their new building.

Mills Shutting Down.

Indiana, Indianapolis. The Merritt Woolen Mill has discontinued business and the buildings, comprising two 3-story buildings, have been sold. The buildings are being dismantled.

For Knitting Mill News, see Knitting Department.

SILK.

New Mills.

*Massachusetts, Hopkinton. We have been advised by the Herminia Silk Manufacturing Co. that they have not yet started operations in the new plant.

New Jersey, Passaic. The Alexander Company is a new concern which has been formed by Alexander C. Huber, Hugh B. Dickinson and Arthur Rushworth, to continue the manufacture of vestings, discontinued by the Alexander Silk Mills. Dress silks will also be made.

*New Jersey, West New York. The Hudson Silk Co., which started erection of their new mill last January is now in operation. This company is capitalized at $100,000, with Edward M. Rand, president, Frank C. Guenthier, treasurer, making broad silks. At present but 30 looms are in operation, but this number will be increased gradually. Goods are sold through Wm. E. Derby, care Vietor & Achelis.

*New York, Canisteo. The machinery has practically all been installed in the Canisteo Silk Company's new plant, and operations will start up shortly.

Pennsylvania, Allentown. It is reported that D. G. Dery has leased space in Christ, Peter & Co.'s plant and will install 80 looms for weaving broad silks.

Pennsylvania, Bally. Operations have been started here in a silk mill, making narrow silk ribbons. The plant will have an equipment of fourteen looms.

Pennsylvania, Mt. Carmel. Contract has been let to W. H. Gangewere for erection of large silk mill, 50 by 250 feet, two stories.

Pennsylvania, Philadelphia. Mr. H. B. Sheplan, late of the U. S. Trimming Co., has started up at 133 Arch St., the National Trimming Co., for the manufacturing of dress, window shade and upholstery trimming, with buttonhole gimps as a specialty. The machinery for the plant is now being purchased, and, it is stated, that they have have enough business on hand to keep them running full for some time to come. They will use cotton, mercerized and silk yarns. Mr. Sheplan has interested with him in this enterprise H. Goldhammer, also of this city. The goods are sold direct.

*Pennsylvania, Reading. The Steiner & Talcott Silk Co. have started operations in their new plant, with equipment of 50 looms.

Enlargements and Improvements.

*Connecticut, Mystic. Work will start at once on erection of new building for the Rossie Velvet Co. They will add 80 new looms.

*Connecticut, New London. Work has been started on the foundations of the new dye house for the Brainerd & Armstrong Co.

*New York, Delhi. A hard silk department has been started at the Delhi Silk Company's plant, and the number of operatives increased.

*New York, Whitehall. Work is progressing rapidly on the new addition for the Champlain Silk Mills.

*Pennsylvania, Allentown. Operations are being started in the Phoenix Silk Co.'s new plant, the machinery from the old mill being removed here. The first floor of new building will be used for winding, warping and finishing, the second, quilling and weaving and the entire third to quilling. E. A. Soleliac will have personal management.

*Pennsylvania, Allentown. All contracts for equipment necessary for addition to the Allentown plant of the D. G. Dery Silk Mill have been placed.

Pennsylvania, Kutztown. Another addition, 120 by 40 feet, one story and basement, will be made to the Kutztown Silk Mill.

Pennsylvania, Tyrone. Negotiations have been completed for purchase of property at this place by Schwarzenbach, Huber & Co., of the Altoona Silk Mill. A new building, 200 by 48 feet, two stories, will be built. They will install 75 additiona looms in the Altoona plant.

Pennsylvania, Weissport. Additional machinery is being installed in the Storms Silk Mill, doubling the capacity.

Pennsylvania, York. A meeting is to be held by the Monarch Silk Company to consider increasing the capital stock from $100,000 to $200,000.

Mills Shutting Down.

Pennsylvania, Clifton Heights. Operations have been discontinued in the Watt Manufacturing Co.'s plant at Burmont, owing to some slight difficulty at the mill.

FIRES.

Massachusetts, Fall River. The Westport Manufacturing Company's batting mill has been damaged by fire to the extent of about $5,000.

Pennsylvania, Allegheny. The shoddy plant of the Pittsburgh Woolen Company has been destroyed by fire, with loss of about $20,000, covered by insurance.

Pennsylvania, Hummelstown. The Keystone Hosiery Mills have been completely destroyed by fire, incurring a loss of $75,000 and throwing 60 operatives out of employment. The company operated 48 knitters on men's half hose and was very busy.

Pennsylvania, Philadelphia. Fire in the mill of Charles Witty & Co., Hancock and Huntington Sts., damaged the establishment to the extent of $1,500. The blaze which originated on the third floor of the building caused a panic among the employes to such an extent that the firm was compelled to shut down the mill for the day. They are manufacturers of damask, quilts and table covers on 165 looms. The damaged portion of the plant will be repaired at once.

Pennsylvania, Philadelphia. A fire of unknown origin recently damaged the plant of Royal & Pilkinton at Adams and Leiper Streets to the extent of $5,000. This concern, which was until recently known as J. T. Royle & Co., manufactures upholstery goods on 12 broad looms and is doing a good business.

MISCELLANEOUS.

Massachusetts, Hudson. The Direct Corehair Company has been organized and will operate a plant here. A brick building, 200 by 60 feet, with an engine house, 32 by 60 feet, will be built. This company has a patent for manufacturing with a device for spinning without mules or jacks.

*Massachusetts, Lawrence. Work is under way on the new building for the Lawrence Dye Works Co. It is expected to have same completed in the early spring.

*Massachusetts, West Millbury. Work will be started at once on rebuilding the Millbury Scouring Co.'s plant, Thos. Windle & Son, proprietors. They will do a custom scouring and carbonizing business.

Pennsylvania, Philadelphia. Contractors are estimating on a one-story dyehouse, 40 by 129 feet, a two-story stable, 30 by 32 feet, and a one-story boiler and engine house, 65 by 26 feet, for the Allen Dyeing and Finishing Works at Frankford Ave. and Cambria St. The buildings for which these estimates are asked were recently destroyed by fire.

FACTS AND GOSSIP.

Connecticut, Norwich. John A. Moran and others have purchased the plant formerly operated by the Owaneco Silk Co. and will start operations shortly.

*Connecticut, Poquonock. It is stated that as soon as favorable reports are received from samples now sent out, that the promoters of the woolen mill at this place will start active operations. It is proposed to start with about ten looms, increasing by ten more slowly. This is the plant in which James H. McKendrick of Mystic is interested.

Connecticut, Stafford Springs. Archibald B. Paton, formerly with the Geo. H. Gilbert Co., has purchased the Central Woolen Mills. The mill is to be run to its full capacity with possibility of an increase in the number of looms.

*Georgia, Watkinsville. Hon. E. B. Thompson is president and treasurer of a new company recently organized to operate a cotton mill here. A. J. Baxter, of High Shoals, will be superintendent of the mill. In addition to the cotton mill, the company will establish a water works and electric light plant, for mill and town.

The Jno. P. King Manufacturing Company, Augusta, Ga., have placed a large repeat order for humidifiers with the American Moistening Company, Boston, Mass.

*Indiana, La Porte. The Clear Lake Woolen Mills have been incorporated with capital stock of $200,000 by Wallace Smith & Co., Milwaukee, Wis. This company will operate the plant of the King & Fildes Co., idle for some time.

Kansas, Lansing. The twine plant at the Kansas penitentiary has been started after idleness of about four months.

*Louisiana, New Orleans. The Lane Cotton Mills and the Maginnis Cotton Mills have been merged into one company as the Lane-Maginnis Mills Corporation, with capital stock of $1,600,000. S. Odenheimer, formerly president of the Lane Mills, is president of the new corporation; W. T. Maginnis, first vice-president; Maurice Stern, second vice-president; Harry T. Howard, treasurer, and Geo. A. Hero, secretary. It is reported that the mills, which are to be operated with their full capacity, will be improved in the near future.

Louisiana, Opelousas. We learn through Aaron Jacobs of this place that the town is desirous of having a cotton factory and he has been appointed to make investigations, etc., relative to such a plant.

The Totokett Mfg. Co., Versailles, Conn., have placed an order with the American Moistening Company, Boston, Mass., for the complete equipment of their mill.

*Maine, Clinton. It is reported that the capital stock, $125,000, has been subscribed for the proposed woolen mill in which Frank Bussey and Manley Morrison have been mentioned as actively interested.

Maine, Springvale. Jagger Bros. have erected a substantial dam upon the water privilege owned by them in South Sanford and contemplate erecting a building the coming spring suitable to contain the machinery now operated by them at this place.

*Maryland. Frederick. We learn that J. D. Shahan of Port Henry, N. Y., has been corresponding with the Business Men's Association, relative to establishing a knitting mill here.

Massachusetts, Boston. The Acme Thread Works is a new concern which has been in operation since last July, at 10 Thacher St., manufacturing sewing threads, from 8 to 100, also mercerized threads, spools, tubes and cones. Company is capitalized at $15,000. Elwyn R. Dyer, president and manager, and Leon J. Hazelton, treasurer. Company has a New York office.

The Union Mfg. Co., Union Point, Ga., have adopted the American Moistening Company's system of humidifiers.

*Massachusetts, Clinton. The Earnsdale Worsted Co. has been incorporated with capital stock of $35,000; W. Brodmerkle, president; S. Shuman, treasurer; H. Shuman, secretary. This plant is equipped with 2 sets cards and 25 looms, making high class worsteds and woolen goods, men's wear.

*Massachusetts, Collinsville. In about a week or ten days the Beaver Brook Mills will be running to their full capacity.

*Massachusetts, Easthampton. The National Felt Company has been incorporated at this place with capital stock of $50,000. Geo. L. Manchester is president of the company and Chas. H. Johnson, treasurer.

Massachusetts, Fall River. It is reported that a deal has been closed whereby the Pocasset Mfg. Co. has secured control of the Fall River Manufactory.

Massachusetts, Fall River. It is reported that the Estes Mills, operated by J. H. Estes & Sons and the Seaside Mills, Wm. J. Dunn, proprietor, are to be consolidated. It is understood that the machinery from the Seaside Mills will be removed to the Estes plant. Both concerns are manufacturers of absorbent cotton for medical purposes.

Massachusetts, Fitchburg. It is reported that John Thompson will start a plant for manufacturing lace curtains within a few weeks.

The Pine Tree Silk Mills Company, Philadelphia, Pa., have placed their order for humidifiers with the American Moistening Company, Boston, Mass.

Massachusetts, Franklin. Albert and William Mann are to rebuild a portion of the Bush factory for manufacturing shoddy.

Massachusetts, North Adams. It is reported that A. J. Buffum, formerly with Waterhouse & Buffum, is interested in a plan under way for utilizing the Johnson-Dunbar Mills property.

Massachusetts, North Adams. Mr. Albert J. Buffum has retired from the firm of Waterhouse & Buffum, manufacturers of fancy worsteds. The business will be continued by Mr. Waterhouse and Mr. Howard, who have formed partnership as Waterhouse & Howard. Mr. Howard, who has

been the selling agent at New York under the old firm, will remain at New York, while Mr. Waterhouse will have active management of the mill.

*Massachusetts, Spencer. Arrangements have been made by the Taylor Woolen Co. for selling their goods through Lemcke, Marcher & Welsch, 462 Broome Street, New York. Various repairs have been made about the mill recently.

*Massachusetts. Westboro. It is reported that Philadelphia parties have been looking over the Westboro Carpet Co. with view to operating same.

The Dartmouth Manufacturing Corp., New Bedford, Mass., have placed a repeat order for humidifiers with the American Moistening Company, Boston, Mass.

*Massachusetts, Wrentham. We have been advised by M. T. Farnum that the Glenwood Mill was not entirely destroyed by fire. Although he contemplates rebuilding, has not yet made any definite plans.

*Minnesota, Delano. We have been advised by C. E. Parker that the building is now being erected for the proposed Rockford, Minn., woolen mills, to be removed here.

*Mississippi, Shuqulak. It is expected that the Noxubee Cotton Mills, which have secured charter, will erect their new mill in the near future. They propose manufacturing 8 to 12 cotton yarns, carpet warp, cotton rope and batting. W. J. Hubbard is president of the company. A dye house 's contemplated in the plant.

*Missouri, Kansas City. A committee has been appointed to solicit $50,000 in subscriptions toward the capital stock of the proposed Kansas City Cotton Mills Company in which Witten McDonald is interested.

New Hampshire, Manchester. At the meeting of the directors of the Amoskeag Manufacturing Co., held recently, it was voted to call a meeting of the stockholders, Nov. 15th, and to recommend the lease of the Amory Manufacturing Co.'s plant, at rental of 10 per cent. per annum and of the Manchester Mills at 6 per cent.

New Jersey, Camden. It is reported that the buildings formeerly used by Geo. Shimer & Sons at 5th and Erie Streets are to be remodeled and equipped with machinery for a new and up-to-date dye house. The old machinery is now being removed, having been sold to other parties.

New Jersey, Passaic. John J. Ruegg and Alexander C. Huber, president and secretary and superintendent respectively of the Alexander Silk Mills, have retired from the firm. The plant will run exclusively on mohair serges for linings, discontinuing the manufacture of vestings. It is proposed to change the name of the plant to the Greenwood Mills.

New Jersey, Paterson. Anderson Bros., manufacturers of silk mufflers and pocket handkerchiefs, have turned their plant over to the creditors. The decrease in popularity of above goods is reason for company going out of busineses. The liabilities are placed at $100,000, with nominal assets of $130,000.

New Jersey, Paterson. Rosenthal Bros., manufacturers of silks, have made an assignment to William Schmidt. The assets are estimated at $8,025, with liabilities of $8,048.54. An effort will be made to adjust affairs so that business may be resumed.

New Jersey, Princeton. The Mapele Silk Manufacturing Co. has been incorporated with capital stock of $25,000. Charles Lehman, David J. Maibrunn and Adam Petz are interested.

New Mexico, Albuquerque. It is stated that the Rio Grande Woolen Mills have received an offer to remove plant to some Oklahoma town, where factory site, buildings and some cash will be contributed.

New York, Falconer. Murray H. Davis of this place is making alterations and additions to large building for manufacturing textile goods.

New York, Buffalo. The Hewitt Rubber Company is installing a few looms to weave the various kinds of fabrics used by rubber manufacturers.

New York. S. I., Richmond Valley. J. W. O'Meara is now proprietor of the O. H. Barnard Silk Mill and will continue operating same on trimmings. This mill is equipped with 40 looms and dye house.

New York, Unionville. J. Toner and Sons are installing an additional loom in the plant, giving them a total of 10 ribbon looms.

North Carolina, Charlotte. The Excelsior Cotton Mills have been organized with John Van Laningham, president; Geo. A. Howell, secretary and treasurer, and John Gilligan, superintendent and manager. This company is undoubtedly formed to continue the plant formerly operated by G. A. Howell.

North Carolina, Liledoun. The Moore Cotton Mills have been purchased by J. W. Watt and J. M. Miller of Stony Point, and Dr. O. L. Hollar, Taylorsville. It is stated that they will take possession of the plant Jan. 15th.

North Carolina, Monroe. Charles Iceman is one of the incorporators in the Icemanlee Cotton Mills Co., reported organized with capital stock of $150,000.

*North Carolina, Raeford. The Raeford Power & Mfg. Co. has been incorporated recently with capital stock of $200,000 and contemplates starting erection of new mill for making coarse cotton yarns, about January. T. B. Upchurch is president of the company and J. W. McLauchlin treasurer.

North Carolina, Winston-Salem. Capt. Alex. Thompson of England, representing Mr. Fletcher, a large lace manufacturer, has been at this place with view to establishing a mill here, employing from 500 to 600 people.

Pennsylvania, Philadelphia. The Ivins, Dietz & Metzger Co. announce that they are about to apply for the allowance of an amendment to their charter providing that all of the shares of its capital stock shall be of the same class and entitled to share equally in the net income earned by the corporation, instead of being one-half preferred and one-half common stock as now provided in its charter. The mills of the company are located at Lehigh Ave. and Marshall St., where they operate 200 looms on Brussels, ingrain and wilton art squares, rugs, etc. The company is capitalized at $1,000,000 and sells its production direct.

Personals.

F. C. Dumaine, who has been treasurer for the Amory Co. and the Manchester Mills for the past few years, has been elected treasurer of the Amoskeag Mfg. Co. to succeed C. W. Amory, who is retiring from business. The Amory and Manchester mills will shortly be leased by the Amoskeag Mfg. Co.

Frederick E. Adams, superintendent of the U. S. Spool and Bobbin Works, Woonsocket, R. I., has resigned his position to accept a more lucrative one with a larger concern. Mr. Adams has been with this company in all 14 years, 12 years as assistant superintendent. His successor has not been named.

O. L. Suenderhauf, formerly with the Central Woolen Co., Stafford Springs, Conn., has recently been appointed agent of the American Woolen Co.'s Mill at Collinsville, Mass., and has also received the appointment as agent of their Bay State Mills at Lowell, Mass., John A. Faulkner, who has been connected with this plant for the past 33 years, the last 7 years as agent, having resigned.

Ernest Lord, formerly with the Farwell Worsted Mills, has been engaged by the Massasoit Woolen and Worsted Mills, Huntington, Mass., to act as general superintendent and designer.

Fred Knott, formerly superintendent of the Pleasant Valley Cotton Mills (N. Y.), has been appointed to a similar position in the Harmony Mill, Cohoes, N. Y.

A. C. Houston has been appointed superintendent of the new plant of the Hussy Woolen Co., Guilford, Me. Mr. Houston has been overseer of dyeing for the Campbell Mfg. Co., Sangerville, Me., which position is now filled by Turner Rollinson.

Mr. Hope, superintendent of the Richelieu Woolen Mills, Chambly Canton, Quebec, has resigned and is now holding a similar position in Westerly, R. I. He has been succeeded by Frank Doyle, who has been assistant superintendent and designer for some years. Hugh Adams, foreman of weave room, will be Mr. Doyle's assistant.

Spencer Borden, Jr., has been elected a director of the Arkwright Mills, Fall River, Mass., to fill the vacancy caused by the resignation of Wm. N. McLane.

S. Davison, formerly of Rutherford, N. J., is agent of the Hamlet Textile Co., Woonsocket, R. I., succeeding the late Herman Auer.

W. A. Trotter, formerly with the Clinton Woolen Mills, has accepted a position to take charge of the Guyandotte Woolen Mills at Guyandotte, W. Va.

Eben C. Willey has resigned the management of the Hope Mills Mfg. Co., Hope Mills, N. C. His successor has not yet been appointed.

James J. Murphy, formerly of Kunhardt's Mill, Lawrence, Mass., has accepted a position as overseer of carding with the Brigham Woolen Co., Danielson, Conn.

Alex Duval, formerly of Webster, Mass., has accepted position of overseer of carding for the Dawson Mfg. Co., Holden, Mass.

Chas. A. Cobbett has accepted a position as overseer of carding in the Aetna Mills, Watertown, Mass., to take the place formerly held by Wm. H. Wilcox.

Geo. Thomas has accepted a position of overseer of ring spinning at the Uncasville Mfg. Co.'s mills at Versailles, Conn. Mr. Thomas was formerly second hand at Lonsdale, R. I.

Wm. H. Hawkins, overseer of spinning at the Nottingham Mill, Providence, R. I., is assisted by Jas. Bradley of Blackstone, Mass., as second hand and Theodore Johnson of Pontiac as slasher tender.

Samuel F. Came, formerly of Springfield, Ill., has accepted a position of overseer of spinning with the Assawaga Co., Killingly, Conn.

Geo. A. Barber, who has been for twenty-five consecutive years mule spinner for the Ashland Cotton Co., Jewett City, Conn., has resigned. Previous to coming to Jewett City, Mr. Barber held a similar position in Parkerville for fifteen years, making a total of forty years as a mule spinner.

S. D. Whitmore, formerly overseer of finishing in the Reynoldsville Woolen Mills (Pa.), has taken a similar position with the Apollo Woolen Mills, Apollo, Pa.

Geo. Ladd, night overseer of finishing at the Baltic Mills, Enfield, N. H., has resigned.

James Fagan of Old Town has taken charge of finishing for the Morrison Woolen Co., Dexter, Me.

Wm. J. Hadfield, who has been with the Newburg Steam Mills, Newburg (N. Y.), has accepted position of overseer of weaving with Harrison & Gore Silk Mills, Newburg.

E. J. Barry, formerly overseer of weaving at the Pemberton Mills, Lawrence, has accepted a similar position with the Acushnet Mills, New Bedford, Mass. Samuel Deane, formerly of the Ann and Hope Mills, Lonsdale, R. I., assists him as second hand.

Joseph Bryant, for the past ten years machinist at the Lonsdale Company's mill (R. I.) has resigned and is succeeded by Harry Stott, formerly at the Waltham Mfg. Co.'s mills, at Waltham, Mass.

Milton Reed, one of the original directors of the Seaconnet, Hargraves and Parker Mills, and director of other Fall River mills, has resigned his directorship in all mill corporations.

R. J. Irwin, formerly of Stottville, N. Y., succeeds Wm. U. Hanke as superintendent at Hanover Woolen Mills, Hanover, Ill.

T. J. Hatfield, formerly of Chester, S. C., is superintendent of the Huguenot Mills, Greensville, S. C. The superintendent of the Camperdown Mills at Greensville is C. H. Robertson.

Arthur L. Ware, formerly of Greensboro, N. C., has been appointed superintendent and manager of the Fountain Inn Mfg. Co. to succeed J. R. Young.

M. G. Stone, who has been for several years superintendent of the Pacolet and Gainesville (S. C.) cotton mills, has taken charge of the entire Pacolet plant. John Abney, of Columbus, Ga., has succeeded Mr. Stone as superintendent of the Gainesville mills.

Alexander Shannon, who has been superintendent of the Phoenixville mill of the Ravine Mills Co., Vernon, Conn., for the past 14 years, has resigned and has gone to Blackstone, Mass., to take a similar position in a mill there.

Wm. K. Litch has accepted the position as superintendent of the C. A. Root plant, Uxbridge, Mass., made vacant by the resignation of Abraham Mellor. Mr. Litch has held the position of designer at this mill.

F. A. Abbott, the assistant superintendent of the Mississippi Cotton and Woolen Mills, will take the place of Mr. Davidson, the former superintendent, who has resigned, until a regular meeting of the stockholders, when a superintendent shall be selected.

J. C. Smith, recently secretary and treasurer of the Newton (N. C.) Cotton Mills, has accepted a similar position with the Shelby Cotton Mills, N. C.

Chas. T. Lipscomb, recently paymaster of the Olympia Cotton Mills, Columbia, S. C., has accepted a position as secretary and assistant treasurer of the Standard Warehouse Co. His place at the Olympia Mills is supplied by David Y. Monteith.

Joseph E. Fletcher, of Providence, R. I., president and treasurer of the Coronet Worsted Co. and Plainfield Woolen Co., has been appointed by the Governor of Rhode Island as a delegate to attend the national conference on immigration to be held under the auspices of the National Civic Federation in New York City, Dec. 6, 7 and 8. Mr. Fletcher will represent the woolen and worsted mill interests.

J. C. Smith, formerly secretary and treasurer of the Newton (N. C.) Cotton Mills, has bought an interest in the Shelby (N. C.) Mills and will hold a similar position to that held in the Newton Mills.

D. S. Knight, formerly with the Gilbert Mfg. Co., Ware, Mass., and later with the Bound Brook (N. J.) Woolen Mills, has succeeded Rheinhold Schrayer as superintendent of the weaving department of the woolen mill of the Norwalk Co., Winnepauk, Conn.

Herbert M. Schofield, son of Geo. Schofield, agent of the Moosup Mills, Moosup, Conn., has been appointed inspector at the custom house, Washington.

Matthew Bolles, who has been assistant designer at the Arlington Mills, Lawrence, Mass., has been promoted to designer. His position has been filled by Walter Butler, who has held the position of assistant designer in the Atlantic Mills, Providence, R. I.

Julius Schmitz, formerly of Philadelphia, has accepted position as assistant designer at the National and Providence Worsted Mills, Providence, R. I.

A. Guant has resigned his position as designer with the Cleveland Woolen Mill Co., Cleveland, O.

Alexander Costine, formerly of Pittsfield, Mass., is designer at the Wilton Woolen Mill, Wilton, N. H.

Frederick M. Morrow, son-in-law of the proprietor (Mr. Hart) of the Squam Lake Woolen Mill, Ashland, N. H., has taken charge of the finishing.

Daniel Sullivan, formerly overseer of spinning and twisting at the Briggs Mfg. Co., Voluntown, Conn., has resigned to accept a position at the Eagle Cotton Mills, Eagleville, Conn.

W. H. Norton, overseer of carding and spinning for the Thorndike Co.'s No. 2 Mill, Thorndike, Mass., for the past seven years, has resigned to accept a similar position in Toronto, Canada.

E. E. Smith, formerly overseer of spinning at the Monaghan Mills, Greenville, S. C., has taken a similar position at the Woodside Mills and is succeeded at the Monoghan by W. R. Coggins of Anderson, S. C.

T. F. Hoy, formerly overseer of weaving at the Capitol City Mills, Columbia, S. C., has been promoted to the superintendency of these mills.

Albert L. Remington, formerly of Manton, R. I., has accepted a position as overseer of dyeing at Oella, Md.

Frank Dixon, who has been overseer of dyeing for the past 14 years at the Hopewell Woolen Mills, has resigned.

Everett Hinckley, formerly of Montreal, Canada, has accepted a position as foreman in packing room at the Glenlyon Dye Works, Providence, R. I.

P. E. Victory, formerly overseer of weaving for the Manville Co., Manville, R. I., has accepted a similar position at the Danielson Cotton Mill, Danielson, Conn.

Jas. Kosler is night overseer of weaving for the Gaffney (S. C.) Mfg. Co.

J. F. Jones, formerly of Uxbridge, Mass., has accepted a position as overseer of finishing at the Glen Mills, Oakdale, Mass.

D. G. McLaren, formerly of Troy, N. Y., has accepted a position as superintendent for the Grand Rapids Underwear Co., Grand Rapids, Mich.

We learn that Mr. R. G. Henderson, agent of the Indian Spring Woolen Company at Madison, Maine, is to remain with that company and is not to connect himself with the mill at Seneca Falls, N. Y., as has been rumored.

Joseph Gibson, formerly of New Bedford, Mass., is now superintendent of the Orient Mfg. Co., Charlotte, N. C.

Bernard Makover, president of the Makover Woolen Company, New York, is the new owner of the Daleville Woolen Mill, East Willington, Conn.

Wm. Lasbury has resigned his position as superintendent of the Broad Brook Woolen Mills, and will be succeeded by J. C. Werner, who has been designer at this mill for the past 11 years. Mr. Werner will begin his new duties Jan. 1, 1906.

Fred Klebart, one of the oldest members of the National Association of the Woolen and Worsted Overseers, succeeds Jacob Auel as superintendent of the woolen mills at Columbiaville, Mich.

Geo. S. Harris, recently superintendent of the Syracuse (Ala.) Cotton Mills, has accepted a similar position in the Gate City Cotton Mills, Atlanta, Ga.

Orlando Wall, from the Falcon Worsted Co., Pascoag, R. I., has accepted a position as designer at the Fitchburg Worsted Mills, Fitchburg, Mass. Mr. Wall has been succeeded by Geo. Berry of Providence, R. I.

Wm. McWilliams has resigned as overseer of weaving in the woolen mill of the Wakefield (R. I.) Manufacturing Co., and is succeeded by Mr. Hinchcliffe.

Mark Lawton, formerly overseer of weaving at the Pierce Mfg. Co., New Bedford, has accepted a similar position with the Manville Co., Manville, R. I.

Wm. Fanning, formerly overseer of weaving for the Standish Worsted Co., has resigned and gone to Lymanville, R. I.

Geo. Ridsdale, formerly overseer of spinning at the Manhattan Worsted Mills, New York City, has accepted a similar position with the Wayne Junction Spinning Co., Philadelphia, Pa.

L. A. Putnam of the Franklin Mills, Greenville, S. C., is overseer of spinning at the Mills Cotton Mills in place made vacant by Mr. Tripp, who has gone to Atlanta.

Mr. Gilson, formerly of New Bedford, Mass., has accepted a position of overseer of ring spinning in Charlotte, N. C. He is succeeded by Mr. Toof of the Atlantic Mills, Providence, R. I.

Chas. Baxter, who has been overseer of spinning for the past 33 years at the Dunham Hosiery Co., Naugatuck, Conn., has resigned.

Alex Thompson has resumed his former position of overseer of bleaching and finishing at the Montreal Cotton Co.'s plant, Valleyfield, Quebec.

Wm. E. Chamberlain, formerly at Nasonville, R. I., is now overseer of finishing at the French River Textile Co.'s mills, Mechanicsville, Conn.

Thos. C. Scott, formerly of Penacook, N. H., has accepted a position of overseer of carding in the Kennebec Mills, Fairfield, Me. Gus Jordan has secured a position as boss dyer and weaver for this company to supply S. S. Tewksberry's place, who has resigned.

Ira F. Phillips, formerly of the Cohannet Mills, Taunton, Mass., has accepted a position as overseer of carding for the Louisville Spinning Co., Louisville, Ky.

M. W. Dawson, formerly with the Warren Woolen Co., Staffordville, Conn., has succeeded Frank McIntire as overseer of dyeing at the Ellis Mills, Orcuttville, Conn.

Jos. M. Newsome, formerly overseer of dyeing at the Concord Mfg. Co., Penacook, N. H., has accepted a similar position with F. Glazier & Son, South Glastonbury, Conn.

John Waters of Watervliet succeeds Alfred Musgrave as overseer of dyeing at the Globe Woolen Co.'s mill, Utica, N. Y.

Herbert Smiley, formerly of Dover, N. H., has accepted a position in the printing department of the Swansea (Mass.) Dye Works. Michael Norton, formerly in the printing department, is now in the dyeing department.

Edwin A. Schreier is overseer of dressing at the Rhode Island Worsted Co.'s plant at Indian Orchard, Mass.

Miss Mary E. V. McLaughlin has been appointed forewoman of the sewing room of the Manton Mills, Manton, R. I., where 93 workers are employed.

S. Manning, boss comber at the Atlantic Mills, Providence, R. I., has resigned because of ill health. His place has been filled by Harry Ray and Mr. Wilson, son of the present superintendent, has been given Mr. Ray's old position.

E. H. Kershaw of New Bedford, Mass., has accepted a position as boss machinist for the Quidnick Mfg. Co. (R. I.) made vacant by A. E. Edgecomb, who has returned to Kent Woolen Mills, Centerville, R. I.

James Fitzgerald, formerly loom fixer at Tillotson Mill, Pittsfield, Mass., has secured a position as overseer of weaving at the Barr Worsted Mill, Philadelphia, Pa.

W. L. Clement, of Maynard, Mass., is the new cloth inspector at the mills of Holden, Leonard & Co., Bennington, Vt.

J. B. West is superintendent of the Premier Cotton Mills, Barton, Ark.

Henry Rowe, formerly of Lewiston, Me., has accepted a position as superintendent in a large cotton factory in Greenville, S. C.

A. B. Paton, for the past 15 years superintendent for the Geo. H. Gilbert Mfg. Co., Ware, Mass., has resigned. He has purchased the plant of the Central Woolen Co., Stafford Springs, Conn., and will manufacture woolen goods.

Zachary T. McKinney, Greenville, S. C., has been appointed to succeed Wm. E. Touchstone as superintendent of the Union and Buffalo Cotton Mills, Union, S. C.

Nathan S. Morgan, formerly of New Bethlehem, Pa., has accepted the position of superintendent for S. D. & J. R. McQuaide of Delmont, Pa.

Henry E. Kirk has been appointed superintendent of the Beaver Brooks Mills, Collinsville, Mass.

Martin Howard has been appointed superintendent of the Parker Hosiery Mill and Dye Works, Portsmouth, Va., instead of Geo. Burras, as reported.

Frederick D. Sayles, Jr., of Providence, R. I., treasurer of the Baltic Mills Co. at Baltic, has donated a check for $500 to the Immaculate Conception church fair.

The McArthur public library, of Biddeford, Me., has been presented with $250 by John Longley of Boston. Mr. Longley is president of the Pepperell Mfg. Co.

James H. Wentworth, manager of the J. H. Gerlach mill in Newton, while driving recently, was thrown from his carriage and severely injured.

William Heathcote, until recently an overseer in the Prescott Mills, was agreeably surprised at his home in Lowell, Mass., recently by a number of his former employes, who presented him with a watch, chain and charm.

Matthew Barr has taken charge of the shipping department of the American Woolen Co.'s Mills at Moosup, Conn., taking the place of A. K. Briggs who has taken a similar position in Thornton, R. I.

Sheffield S. Wells, machinist employed at the Natick Mills (R. I.), has resigned to accept a similar position at the Warwick Mill, Centreville, R. I.

Arthur Kingsley, formerly employed in the engraving department of the Clyde Print Works, has resigned.

Albert H. Greene, overseer of spinning in the Bernon Mills, Georgiaville, R. I., was married to Mabel S. Williams recently.

A. Gates has been engaged as overseer of weaving nights for the Danielson Worsted Co., Danielson, Conn.

Joseph Connors, who has been wool scourer at the Riverside Woolen Mills, Stafford, Conn., for 23 years, is now night watchman for the Warren Woolen Co., Stafford Springs, Conn.

Chas. Heap, overseer of carding in the yarn room of the New York Mills, N. Y., was married Oct. 19th to Miss Angelina Tripp of New Bedford, Mass.

Herman Geisler, who has for some time been loom fixer in the Berkshire Mill, Adams, has been promoted to the position of second hand to take the place of Chas. Bates, who has resigned.

Napoleon Comoyier, loom fixer at the Centreville Mill, has resigned to accept a similar position with the Manville Company, Manville, R. I.

Deaths.

Edgar Harding, head of the commission house of Harding, Whitman & Co., agents for the Arlington Mills, Eddystone Print Works and other large corporations, died suddenly at his home in Boston. Mr. Harding's father was the senior partner of Harding, Colby & Co., the predecessors of the present firm. Mr. Harding was trained in the business and succeeded his father's interests.

Harry Tordoff, superintendent of the Queensbury Mills, Somersworth, N. H., died at his home in Somersworth, Oct. 22, 1905.

Jonathan Ellis, a well known man in the woolen industry, died suddenly Oct. 27th in Port Dover. Mr. Ellis was president of the Ellis Mfg. Co. at Hamilton, Ont. He leaves a widow and six sons and four daughters.

Ernest L. Hill, treasurer of the Renfrew Mfg. Co. of Adams, fell dead in front of his home, Chestnut Hill, Mass., Nov. 2d.

J. Robb Maury, one of the old members of the Philadelphia wool trade, died at the St. Luke's Hospital, New Bedford, Mass., Oct. 31st.

Frank E. McIntire, for 43 years dyer at the Ellis Mills, Orcutville, died recently, aged 69 years.

Joseph Dierkes, engineer for the Robert Bleakie Company for the past 25 years, was killed while going home from work on the track of the N. Y., N. H. & H. R. R., Nov. 2d. He was 64 years of age and leaves a widow and one daughter.

Henry Bates, engineer for the past 30 years for the Clyde Print Works, run by S. S. Greene & Sons at Riverpoint, dropped dead while at his work Nov. 2d. He was 65 years of age and leaves a widow. Mr. Bates was one of the oldest employers of the print works and one of the best known.

Joseph Beaumont, superintendent of the Geo. E. Whitney Woolen Co. at South Royalston, Mass., died recently at his home after an illness of four months. He was 52 years of age and leaves a widow and one daughter.

Mr. Beauchamp H. Smith, 2d vice president of the S. Morgan Smith Co. of York, Pa., died at his home in Los Angeles on November 1st, at the age of 36 years. Mr. Smith went to Los Angeles about five years ago, for the sake of his health, since which time he has resided there, and great hopes of a permanent recovery were held by the family.

Thos. Pilling, president of Kiamensi Woolen Co., Kiamensi and Stanton, Del., died Nov. 6th at the German Hospital, Philadelphia, 69 years of age. He leaves a widow and one son. Mr. Pilling was one of the incorporators of the Kaimensi Woolen Co. in 1864.

Geo. S. Hensel, late president of the Hensel, Colladay Co., died suddenly at his home, 1333 North Broad St., Philadelphia, Pa., Nov. 10th. Mr. Hensel was the founder of the firm which bears his name and was prominent in the business world. He was 66 years of age and leaves a widow, a son and a daughter.

Frank Frysinger of the York Carpet Mills, York, Pa., who died several days ago, bequeathed $5,000 to the York Hospital. Each employe in his factory was given $50.

Alfred Newsholme, prominent citizen of Methuen, Mass., and wool buyer for the United States Bunting Co., Lowell, Mass., died at his home, Nov. 14th. Mr. Newsholme was 56 years of age and leaves a widow and five children.

James Foley, for many years a member of the firm of James Foley & Co., dealers in dye stuffs, died at the Newton Cottage Hospital recently, after an illness of several months. He was 63 years of age, and is survived by a widow and one son. The business is to be continued under the same name.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

Faulty Diction, or Errors in the Use of the English Language and How to Correct Them; by Thomas L. Russell, LL.B. George W. Ogilvie & Co., Chicago. Price 50 cents.

Many common errors in the use of English are arranged in alphabetical form in this little book. It will be of great value to the educated and the uneducated alike in correcting those errors which are so apt to creep into both written and spoken language.

The Printing of Cotton Fabrics; by Antonio Sansome; Abel Heywood & Son, Manchester, Eng. 474 pages, 5 1/2 by 8 1/2. Price $5.00.

This is the second edition of a work that met with much favor in its first edition. It is now brought thoroughly up to date and includes the most recent data relating to the printing of cotton fabrics. It is freely illustrated and the information is arranged in form convenient for reference. An appendix contains 116 samples of dyed and printed cotton goods to which reference is made in the text.

Universal Technical Lexicon (Lexikon der gesamten Technik); Parts 6 to 10; by Otto Lueger; page 7 1/2 by 10 1/2; Deutsche Verlags-Anstalt, Stuttgart, Germany. Price of each part $2.00.

We have received five parts, 6 to 10, the latest to come from the press. They maintain the high standard of the first parts and prove beyond question the great value of the complete work. The illustrations are excellent. The text is written by a large corps of able specialists and carefully prepared for publication by Herr Lueger.

Tabular Statement of the Artificial Dyestuffs (Tabellarische Uebersicht ueber die kuenstlichen organischen Farbstoffe); by Dr. Adolf Lehne; Julius Springer, Berlin. Price $10.00.

A description of the principal artificial dyestuffs found in commerce is here arranged in tabular form. Besides the commercial name a brief statement of the uses, solubility, fastness, etc., are given, and each dye is illustrated with one or more samples of goods dyed with it. The text is in German, but as the vocabulary is necessarily limited the reading matter can be easily understood by those having but a slight knowledge of the German language.

Handbook of Weaving (Handbuch der Weberei); Nicholas Reiser; Arthur Felix, Leipzig, Germany.

We have received parts 3 and 4 of Vol. 2 of this work, which has already been mentioned in our columns. These parts deal with weave construction and are profusely illustrated with diagrams. The text, which is in German, has been thoroughly revised and brought to date. Vol. 2 will be issued in eleven instalments, which are sold at $1.25 each.

Spinning Carded Wool (Filature de la Laine cardee); by L. Priault and Ch. Thomas; 397 pages, 8 by 11; Ch. Beranger, Paris. Price $3.50.

Many books on textile manufacturing have been published in recent years, but there have been very few on that very important branch of textile industry, the manufacture of carded woolen yarn, consequently the appearance of this work is especially welcome. M. Priault is manager of a French yarn mill; M. Thomas, a director of the l'Ecole pratique d' Industrie at Elboeuf. After a brief historical summary of woolen spinning the subject is treated in two sections devoted to alternating machines and continuous processes of spinning respectively. The construction of the various types of machines is explained in detail and illustrated by numerous excellent drawings. The second section, devoted to continuous spinning frames, is of especial interest owing to the development of this method of spinning carded woolen yarn in recent years. From this section we judge that the continuous spinning frame has already made considerable progress in European woolen industry. The work is excellently written and shows a practical as well as a theoretical knowledge on the part of the writers. The text is in French.

Business Literature.

Electric Hoists; The Yale and Towne Mfg. Co., New York City.

A catalogue illustrating and describing electric hoists manufactured by this company. The distinctive features of this hoist are its steel construction and portability. It may be shifted from place to place like a chain block. It is almost as easily wired as an incandescent lamp. It is simple in construction and operation and made of the best material obtainable.

Tentering and Drying Machines; D. R. Kenyon & Son, Raritan, N. J.

A pamphlet calling attention to the Kenyon heavy felt dryer, low-down feed, dryer chain and gill plates, and containing a list of a few of the many users of the Kenyon dryers.

The Westinghouse Standard Engine; The Westinghouse Machine Co., East Pittsburg, Pa.

An attractive catalogue of the new engine built by the Westinghouse Company, in which it is claimed to be unequaled by any other simple non-condensing, single-valve engine made. It is stated that on variable or light loads it is superior to the best accepted types of four-valve simple non-condensing engines.

Pump Machinery for Every Service; Buffalo (N. Y.) Steam Pump Co.

This catalogue is distinguished by two special features; the steam pump section gives the complete prices on steam pumps of all types, both brass and regular fitted. The centrifugal section gives tests, curves of performances and characteristics of centrifugal pumps, where they should be used, and what types should be used for certain situations. It gives the details of construction, and the results of tests obtained by high head multiple turbine pumps, as well as a large amount of general information.

Industrial Plants, Ballinger & Perrot, Philadelphia, Pa.

This is a large and very attractive book in which are illustrated a number of plants planned by Ballinger & Perrot, architects and mill engineers for manufacturing and power plants. They are specialists in reinforced concrete fireproof buildings.

Mechanical Draft, Bulletin 75; B. F. Sturtevant Co., Hyde Park, Mass.

A booklet telling what mechanical draft is and what it does and illustrated with views of different installments of the Sturtevant system of mechanical draft.

The Effect of Preparations Applied to Belts; Cling-Surface Co., New York.

A neat, well-bound pamphlet of 71 pages in which the subject of belt preparations is treated by Thomas Farmer, Jr., and C. Willard Evans.

Fishkill Corliss Engines; Fishkill Landing Machine Co., Fishkill-on-the-Hudson, N. Y.

The Fishkill Corliss engine is illustrated and described in this pamphlet of 40 pages. It also contains a partial list of the many users of this engine, representing the leading firms in this country.

Soluble Softening Oil.

The Arabol Mfg. Co., 100 William street, New York, desire to call the attention of those still using tallow as a softener to the superior results obtained with their soluble softening oil. It gives a smooth finish to the warps and allows the threads to divide well in the lease rods; the cylinders of the slashers do not become smeared, but keep clean and bright. Its properties make it most suitable for strong and close woven goods, such as corduroys, velveteens, sateens, umbrella cloths, cambric warps, etc. The soluble softening oil is neutral and easily handled; it is pliable and uniform and remains in sweet condition summer and winter.

Fishkill Corliss Engines.

Users of steam power generally will be interested in the new catalogue just issued by the Fishkill Landing Machine Co., Fishkill-on-the-Hudson, N. Y., in which is shown the various styles of Corliss engines built by them.

The book is attractively designed and printed and finely illustrated throughout and contains much valuable information for those in charge of the modern steam plant, and would make a valuable adjunct to any engineer's library.

Following a very complete description of the engines built, the several parts are shown, including the well-known valve gear and vacuum dash pots, which have contributed so largely to the popularity of the Fishkill type of Corliss engine.

A long list of references given lends additional emphasis to the company's statement that their product is unsurpassed in point of economy, close regulation and noiseless operation.

The Fishkill Landing Machine Company will gladly send copies of their new catalogue to engineers and others interested upon application.

Ruberoid Roofing.

The Standard Paint Co., 100 William St., New York City, have issued the following circular statement, which is self explanatory:—

"We have received numerous complaints from dealers in and consumers of Ruberoid roofing that inferior imitations of it, many of them having similarly sounding names, have been sold under the deliberate misrepresentation that these imitations are actually Ruberoid roofing or that they are made by the Standard Paint Company or some concern which was or has been affiliated with the Standard Paint Company.

"For the purpose of contradicting these false statements, made sometimes by dishonest salesmen and at other times in printed circulars, and to set the public right as to the truth, the Standard Paint Company asserts and guarantees that the following statement of facts is absolutely and unqualifiedly true:

"First:—The Standard Paint Company is now, always has been, and will continue to be, the only manufacturer of Ruberoid roofing in the world, and has no connection with any other manufacturer of roofing.

"Second:—The Standard Paint Company does not manufacture any other roofing than Ruberoid and does not put it up under any other name than Ruberoid, which is its registered trade-mark.

"Third:—Ruberoid was the first smooth-surfaced, weatherproof and elastic prepared felt roofing ever made. It is and always has been manufactured at Bound Brook, N. J., where the Standard Paint Company has its only American factories. The only other factory of the company in the world is at Hamburg, Germany.

"Fourth:—The method of combination of ingredients employed in the manufacture of Ruberoid roofing is owned and used exclusively by the Standard Paint Company.

"Fifth:—Ruberoid roofing was first manufactured in the year 1891. It was not until many years after the efficiency of Ruberoid roofing had been demonstrated that any imitations whatever of such roofing were produced and sold.

"Sixth:—All roofings similar in appearance to Ruberoid roofing are mere imitations and have not, either directly or indirectly, been authorized by, nor have they received the sanction of, the Standard Paint Company. All claims made by any of these imitators that their manufactures are conducted by persons that are familiar with the manufacture of Ruberoid, are false.

"Seventh:—To identify Ruberoid roofing, the registered trade-mark 'Ruberoid' is stamped on the under side of each four-foot length. As a further safeguard, the name of the Standard Paint Company, sole manufacturers, is printed on the outside wrapper of each roll.

"This circular letter is sent to all persons interested in roofing, so that all false assertions made by manufacturers of imitations of Ruberoid roofing can be immediately denied under the signed guarantee of this company, which hereby offers to prove at any time and at any place the truth of the foregoing statements, and challenges any and all of the imitators of Ruberoid roofing to make good any statement to the contrary."

We shall be glad to send you samples and catalogues on Ruberoid roofing.

An Addition to Belting Literature.

An interesting series of comparative tests were made in January last on the belt testing machine of Sibley College, Cornell University, to prove the difference between the comparative value of Cling-Surface, neatsfoot oil and two belt dressings, one a representative of the semi-liquid form, designated here as "Z," and the other the solid form, designated as "X."

The neatsfoot oil was the best obtainable in that market. the two belt dressings were supplied by their makers, the Cling-Surface was taken from the regular stock used in the college and received ten months previous to test. The four materials were first subjected to chemical tests to ascertain presence of rosin, free alkali, ammonia, mineral and fatty acids. None of the first three were found in any of the materials. Dressing "Z" contained some free mineral acid. The amount of free fatty acid found is as follows:

Cling-Surface	27/100 of 1%
Neatsfoot oil	70/100 of 1%
Dressing "X"	3.5 %
Dressing "Z"	29.85%

Four new, similar, 4-inch, single ply, oak tanned leather belts were used. Each was tested first untreated, then treated in the most careful manner as directed by the manufacturers. Each was then run at high speed for five hours, and laid in a warm place for 36 hours; then again treated and run for three hours and then tested. The neatsfoot oil belt, however, had no last treatment, to avoid a slippery face. The load is applied in this machine by a Prony brake. The engine used had a limit of speed of 40 R. P. M.

The following summary is extracted from the report:

Results from belt No. 1, with and without Cling-Surface: The untreated belt was rather stiff, and followed the usual theory of belting, i. e., an increase of horse power with an increase of initial tension. The slip and arc of contact were both steadily reduced with increase of tensions. The effect of Cling-Surface on this belt was marked: the belt was softened and given a peculiar clinging property without being in the least degree sticky to the touch. By referring to the horse power curve, we find an extremely high transmitting power, when the initial tension is only the weight of the belt. As tension is increased this transmitting power decreases, until passing about 10 per cent. per inch of width of tension, then increases. At maximum initial tension the output is about the same as on the lowest tension, but we have the terrific pressure on journals and shafting. The arc of contact at slackest was 209 degrees. The slip was in no case over 2 per cent. The Cling-Surface gave maximum results at minimum initial tension, which means maximum results, with least wear on machinery and belt. Cling-Surface had no deleterious effect on the belt.

Belt No. 2 untreated was similar to No. 1. Treated with "Z" dressing, the slip was reduced to about 2 per cent., but increased rapidly as the belt was slackened and the output decreased.

Belt No. 3 untreated was similar to the others. Treated with neatsfoot oil, in spite of precautions, it slipped badly, there being more slip and less output than with this belt untreated, and aside from the pliability obtained (which, however, was no more than Cling-Surface produced) the results were adverse.

Belt No. 4 untreated, as the others, but more pliable. Treated with "X" hard dressing, it became distinctly sticky and power was lost in pulling the belt off the pulleys, while some of the belt face was also torn.

Ranking the preparations according to their percentage of horse power delivered, we find this order:—

1.—Cling-Surface.
2.—"Z" belt dressing.
3.—"X" belt dressing.
4.—Neatsfoot oil.

Ranking them in effect on shafting, the above also holds, for Cling-Surface gives 40 per cent. more power on lowest tensions than the next highest. Low tension means little strain on shafting and less lubrication for bearings.

Ranked according to preservative qualities, we find:—

1.—Cling-Surface.
2.—"Z" belt dressing.
3.—Neatsfoot oil.
4.—"X" belt dressing.

"X" cannot be considered a preservative in any sense of the word.

It is therefore found perfectly feasible to run belts loose. This means increased life for the belts, no slip, no burning of the belt, less wear in journals, less lubrication, less straining of shafting and pulleys, and more available power, few or no stoppages for repairs and loss in time and product. In short, the loose belt saves money in repairs and idle time and makes money through the increased profit due to a larger output. We reproduce the curve sheet showing final results of tests in the percentage of horse power transmitted at different initial tensions. The Cling-Surface company have published this report in full and will send it to those interested.

Porcelain Rings for Dye Houses.

The attention of the trade is called to the porcelain rings sold by Mitchell-Bissell Co., 38 Murray Street, New York. These rings are used to advantage in dye houses, bleacheries, print works and fulling mills. A catalogue giving the sizes they manufacture will be cheerfully sent upon application to Mitchell-Bissell Co.

The Quidnick Mfg. Co., Quidnick, R. I., who are making extensive improvements in their machinery equipment have just installed a large number of spinning frames furnished by the Howard & Bullough American Machine Co., Pawtucket, R. I. They are also receiving shipments of drawing frames from the same builders.

A new mill is being erected for the J. S. Turner Mfg. Co., Lowell, Mass., into which they will move upon its completion. Large quarters are necessary to provide for their growing business and the new plant will be arranged with special relation to their requirements.

Textile Education.

Education by correspondence is a comparatively new movement, yet its growth has been remarkable; it has proved its value by supplying technical instruction at low cost and with no loss of working time to those unable to attend a technical school. This has proved to be a great advantage to our textile workers. It aids the ambitious man holding a subordinate position in a mill with correspondingly small pay, to obtain the technical education necessary for his advancement. A correspondence course does not make it necessary for a student to give up his position; he retains the income from his labor and gains in practical experience while increasing his knowledge of the theory and practice of the textile industry.

The success of the correspondence method of instruction has been demonstrated by the International Correspondence Schools with their 800,000 students and graduates. This institution has recently published "1001 Stories of Success," which tells the story of typical cases of advancement and increase of salary of but a small portion of their students that have been benefited by their courses of instruction. A copy of this publication together with full information concerning this textile course will be mailed free upon application to C. P. Brooks, principal and manager of the textile department of the International Correspondence Schools, Box 836, New Bedford, Mass.

The Milan International Exposition.

In order appropriately to celebrate the completion of the Simplon Tunnel—one of the greatest known triumphs of engineering—an International Exposition under Royal Patronage will be held in Milan from May to November, 1906, and it is expected to be the largest European exposition ever held outside of Paris.

Practically all the European and several Asiatic countries are to participate.

In the transportation section, retrospective exhibits will show the historical development of the various methods of travel.

The dominant feature will be motion. All products, as far as possible, must be shown in connection with the processes, thus filling the halls with live exhibits.

Milan is the centre of the most productive section of Italy. Its population is one and a half million, while Lombardy, no part of which is more than three hours distant, has nearly five million inhabitants.

Genoa, the port of entry, is less than one hundred miles distant. The cost, therefore, of transporting exhibits from the United States will be comparatively cheap.

There will be an especial pavilion devoted to the silk industry where all forms of appliances connected with this industry will be displayed, as well as all varieties of silk that are manufactured. This in itself, it is believed, will give to the textile industry a very great impetus, and bring to Milan the best examples of all machines and products connected with textiles.

The commissioners for the Milan Exposition are J. H. Gore, George Washington University, Washington, D. C., or L. S. Ware, 54 Rue de la Bienfaisance, Paris, France.

An Exceptional Location.

By virtue of its extreme healthfulness and by reason of its accessibility to two great cities, Lakewood has become the most popular winter resort within its distance from the Metropolis. It is only sixty miles from New York and seventy from Philadelphia, distances covered by the express trains in less than an hour and a half's time, making it virtually a residential suburb of both cities. This fact alone is enough to insure a future greatness rivaling the historic old-world resorts. There is a modern colony of beautiful residences, luxurious hotels, and romantic Queen Anne cottages, all equipped with every modern convenience for contributing to the physical comfort and social well-being of the sojourners in this delightful retreat. The soil is porous sand and gravel which renders the air very dry and clear. There are absolutely no swamps nor malaria, and the warm air scented with the balsamic fragrance of the surrounding forest is exceptionally refreshing after the trying conditions in a great city. Nothing is lacking to make Lakewood as ideal a spot for a winter home as it is for a brief vacation. The Lakewood booklet, recently published by the Central Railroad of New Jersey, is replete with information concerning this unique resort, and may be had by writing to C. M. Burt, G. P. A., New Jersey Central, 143 Liberty Street, New York City.

The Talladega Hosiery Mills.

About the middle of October the Talladega osiery Mills started operations in Talladega, Alabama. S. Goldberg is president of the company; T. D. Boynton, secretary and treasurer. They have a new one-story brick building, 120 by 50 feet, with a dyehouse 40 by 40 feet. They have an equipment of 25 improved knitters, 35 ribbers and 10 loopers. The mill is run by a 60 h. p. engine.

A Southern Fine Goods Mill.

The Central Cotton Mills, Griffin, Ga., started operations in August, 1905. This plant is run under the personal supervision of Allan Little, who is also general manager and superintendent of the Boyd-Mangham Mfg. Co., and the Spalding Cotton Mills, in Griffin. The plant is equipped with Lowell Machine Shop looms and the finest grades of white figured goods will be manufactured.

Election of Officers.

At the annual meeting of the Fisk Manufacturing Company, Springfield, Mass., Nov. 20th, the following officers were elected: President, George C. Fisk; treasurer and general manager, W. S. L. Hawkins; clerk, Harry G. Fisk. These officers constitute the board of directors.

Woolen and Worsted Overseers' Association.

The 23d semi-annual convention of the Woolen and Worsted Overseers' Association was held at the American House, Boston, November 18. The meeting was called to order by President Biddles, and the first business was the reading of the minutes of the last meeting held at Providence in May, which were approved. The report of the beneficiary fund was read and approved and turned over to the committee consisting of G. W. Gerry, C. Hurst and S. Walker. Following is the report of the treasurer, A. E. Jones:

General funds in Blackstone National Bank	$223.73
General funds in Uxbridge Savings Bank..	537.73
Cash on hand	16.90
Interest	9.36
Total	$787.72
Beneficiary fund on deposit in bank	$160.00

The beneficiary secretary, George Burr, reported no loss by death and no assessment for the last six months.

Next in order was the election of the following new members:

Henry Higgs, D. G. Byars, W. R. McCarmach, F. A. Gunther, A. J. Zeigler, J. H. Lawler, C. J. Jones, W. H. Ryder, Jno. Lancaster, J. W Bond, George Bury, Fred Carter, M. F. McTighe, J. H. Creaser, J. E. Reynolds, C. S. Jackson, J. J. Cahan, O. F. Ireland, Robert E. Horne, A. W. Holden, J. E. Barber, P. H. Mooney, Lees Mallinson, W. D. Capeless, Wm. W. Taylor, J. R. MacGregor, H. G. Howell, E. P. Barber, James Patrick, Joseph Tellier, Jno. Ogden, Jno. J. Shea, J. F. Drummond, Wm. Crossley, Charles F. Hacking, J. H. Gagan.

Associate members: James S. Turner, Lowell, Mass.; Jno. J. Wehinger, Worcester, Mass.; Herbert Midgely, Worcester, Mass.

The election of officers for the ensuing year was then taken up and a long discussion followed. S. Walker of Uxbridge was unanimously chosen president; G. W. Gerry, first vice president; James D. Oakell, second vice president; James McDowell, third vice president; Walter Pickford, secretary; and Thomas Buchanan, treasurer. G. W. Burr was chosen secretary of the beneficiary department. The old board of trustees will serve another year. The report of the committee on constitution and by-laws was ordered to be held over till the next meeting. The publication of a textile paper was found to be inexpedient at the present time. A committee of five, A. E. Jones, C. M. Hurst, T. N. Parent, L. Carmanck and W. Pickford, were chosen to revise the Manual. When dinner was served the 147 members present made no objection to adjournment. The next meeting will be held at Providence, R. I., the third Saturday in May, 1906.

Following is a list of the members present:

T. W. Biddles, S. Walker, George Gerry, Walter Pickford, A. E. Jones, J. F. Leonard, R. G. West, Norman Ambach, J. W. Linnehan, J. F. McCormack, David Shepard, Richard Owen, E. Fred Deverall, Richard O'Donnell, Richard D. Twohig, Jno. Hughes, J. B. Jones, Edw. H. Marble, J. J. Deavid, Martin Welsh, Fred Ashtin, W. H. Broadhead, Henry Shaw, Chas. I. Keegan, F. A. Hardy, J. F. Dolan, Wm. H. Lacey, James E. Okill, D. F. Scribner, Jno. J. Wagner, T. J. Crowin, Asa Garth, Walter Wright, Thos. Gordon, Alfred J. Cox, W. E. Chamberlain, Samuel Welsh, Benj. Oldfield, Thos. Pendergast, A. Ormiston, James H. Cobb, James A. Morgan, S. F. Croffwell, K. F. McGlone, George Gerry, J. F. Drummond, C. M. Hurst, E. B. Flannigan, James A. Teep, J. H. Creaser, Jno. J. Shea, J. J. Callman, Thomas Byron, Thomas D. Holden, J. W. Bond, H. F. McTighe, C. H. Ellis, A. B. Smith, Thos. P. Smith, Thos. H. Plouff, B. Eyers, Thos. Goddard, F. H. Greene, Benjamin Husfall, J. H. Husfall, J. E. Bradley, F. Gunther, L. F. Welsh, N. J. Nelson, Thos. S. Jackson, J. H. Niding, C. Midgely, R. J. Hackitt, J. D. Price, C. M. Whittier, F. C. Neff, J. E. Graham, J. H. Rule, G. W. Shellschont, J. S. Boys, N. P. Barber, C. A. Elliott, W. Pashley, J. H. Pickford, W. H. Lord, W. H. Adams, G. H. Hunwell, T. S. Drury, L. Carmack, James McDowell, J. C. Hassett, J. E. Lancaster, J. Canee, C. B. Jennings, A. R. School, J. J. Wehinger, F. P. Gailagher, L. J. Pendergast, Joseph Tellier, J. R. Ran, J. B. Lanse, J. K. Geb, Joseph Schofield, H. P. Fraser, T. N. Parent, C. J. Jones, James Booth, J. E. Barber, George Geb, W. N. Philbuck, Samuel H. Illman, W. H. Shephard, Jno. Sheehan, James E. Mullen, F. W. Dixon, E. Davies, Samuel J. Nield, Jno. Fraser, J. R. McGregor, F. J. Entwhistle, R. B. Robinson, Allan Loft, L. E. Eddy, O. F. Ireland, W. R. Hassett, Thomas Buchan, Charles E. Hoyle, Eugene Saxe, Charles E. Reed, G. W. Burr, Martin O'Toole, C. Humboldt, Abraham Hey, E. S. Eddy, J. H. Hilliers, Herbert Midgely, Turner Rollinsers, H. Rathburn, Frazier L. O'Leary, A. S. Tainter, James Lawler, James Farren, C. T. Donlevy.

Society, Sport and Health Go Hand in Hand.

As a winter resort for health, sport and social charms, Lakewood is unsurpassed. The hotels are magnificent structures in the Georgian or Colonial style, capable of entertaining at least three thousand guests, a number equal to the population of the village itself. There are four or five or palatial dimensions, replete with reception rooms, ball rooms, dining rooms, smoking rooms, cafes, bookstalls, brokers' offices, telephone and telegraph connections. But the greatest features of all are the sun parlors and sun galleries that surround three sides of every building, offering a promenade in some cases a quarter of a mile in length .The sun parlors are heated by steam, the sunlight enters through semi-transparent curtains of colored silk and the temperature is that of a day in June. They are furnished with heavy, soft carpets, cozy chairs and couches, and offer nothing less than an environment of the most luxurious repose. One of the larger hotels has added to its other appointments an equipment for the practice of hydrotherapy which has proved to be of great value in treating nervous troubles. The Lakewood booklet, published by the Central Railroad of New Jersey, is replete with information of interest, including descriptions and rates at the various hotels and boarding houses. Write for this booklet to C. M. Burt, G. P. A., Central Railroad of New Jersey, 143 Liberty Street, New York City.

Half Hose.

The Gem Knitting Mills Co. of Reading, Pa., have moved their factory from Front and Green Sts. to Second and Buttonwood Sts. In their new location, where they have more room, they are enabled to make a greater variety and production of men's solid colors and fancy mixtures and extract half hose. They now have a daily production of over 400 dozen, which will be increased to 500 or more before spring. They are making from 144 to 200 needle goods of good quality and expect to add other lines from time to time. Mr. Charles P. Bower is the new president and general manager.

A Leading Southern Mill.

One of the oldest and most successful companies in the South is the Hutcheson Mfg. Co., Banning, Ga. They have ample water power and are able to run the greater part of the year. They are also equipped with steam to be used in case of emergency. The product is cotton yarn of the highest standard. J. R. Lasseter is the manager and E. J. Lovern, superintendent.

Steam Turbines and Generators.

The General Electric Company has just received an order from the Chicago Edison Company for 8,000 Kw. Curtis steam turbines and generators. These machines are each capable of developing 18,000 horse power. This order is a duplication of one formerly received from the Chicago Edison Company for two similar machines, making a total of four machines for this company.

The New York Edison Company has also recently ordered two machines of this size. These are the largest steam turbines ever designed, the six units referred to being capable of producing a total of 108,000 horse power.

The Chicago Edison Company has just started up its fourth Curtis turbine unit of 5,000 Kw. capacity. This company was the first to install and operate a Curtis turbine of this size.

Increased Facilities.

In order to care for their continually increasing business the American Blower Company of Detroit are erecting a three-story addition to their plant. This particular addition is rendered necessary by the growing popularity of their type "A" enclosed, vertical, self-oiling engine which was placed upon the market some two or three years ago, meeting with immediate favor.

The building will be of steel and brick construction. The first floor will be used for erecting and testing engines, a very complete outfit being put in for the latter purpose. The power from engines under test will be absorbed by generators and air compressors. An electric crane will form part of the equipment in this department. The second floor will be used for storing engine parts and painting the completed engines, and the third floor will be utilized for storage purposes entirely.

Correspondence by Cotton Bales.

Some of the packers of cotton in America are a little inquisitive. A few weeks ago a missive was found in a bale of cotton asking for particulars where the bale was opened, etc., and requesting that the party should send his photograph to name and address stated. I have heard of a long letter being found in another bale containing a string of particulars as to the conditions of the cotton pickers, wages earned, pieces of the raw cotton at first hand, and what price had to be paid for a yard of calico in the States, and in return wanting information as to the cost of spinning and so on. A correspondent has handed to me a letter found a few days ago in an American bale of cotton. It states that the bale was packed at Cedar Grove, Texas, Nov. 5th, 1904, and asks for information to be sent on to name and address stating when it was worked up. These missives are interesting as indicating that packers and others are interested as to where the cotton goes. I take the view that something more than ordinary curiosity prompts the putting of letters of this kind in cotton bales. It is an interesting fact to learn where cotton goes. In this way lines of communication may be opened out by which much useful information may be obtained by an exchange of letters. I wonder if packers of cop yarn, etc., ever indulge in similar experiments to obtain the destination of an article. If so, it would be interesting to learn with what success their inquiries have met.—A Correspondent in Cotton Factory Times.

Used Eighteen Years on the Same Belts.

One by one large manufacturers are recognizing the importance of giving personal attention to what are usually regarded as small details in the purchase of supplies.

Take for instance an item like Stephenson bar belt dressing, which is made by the Stephenson Mfg. Co. of Albany, N. Y. E. A. Kellogg, treasurer of the company, reports that their volume of business is steadily increasing despite the fact that they have no personal representative in the field. They make their appeal for the patronage of belt users in asking permission to send a free sample of their product by mail to anyone interested. They do this immediately upon receipt of a 2 cent stamp.

The Nashua Mfg. Co. have just put in a second 100-lb. lot of the Stephenson dressing, it having been tried out by them solely upon its merit and adopted regardless of the fact that it is a little higher in price than any other belt dressing on the market.

"Stephenson" stands for quality, economy and efficiency, and it is claimed that those who bought it 18 years ago still use it, and on the same belts.

The Cincinnati Traction Company has placed a large order for the Goetze patent copper gaskets with Frederick Goetze, 723 East 141st St., New York, N. Y.

Mercerizing Yarn.

In another column will be found the advertisement of the Luzern Yarn Co., of Wilkesbarre, Pa. This concern does skein mercerizing only. By following this specialty, doing the work by a slow process, sparing neither time nor chemicals in order to produce the best result, and refusing to take contracts at prices that would necessitate imperfect work, they have won for themselves a name second to none in this line of work. Their machinery, invented and patented by themselves, is so constructed that either fine or coarse counts are thoroughly mercerized to the centre. They also do dyeing (matching to color) and bleaching, and will be pleased to submit prices at any time.

Enlargement of Business.

The announcement in another column of the purchase by the Curtis & Marble Machine Company of Worcester, of the business of the Atlas Foundry and Machine Company and the Miller Press and Machine Company consolidates with the former concern lines of machinery which have been in some degree competitive.

The business of both concerns has been transferred to Worcester and the Curtis & Marble Machine Company will continue to build machines formerly made by the old concerns in connection with their own large line of woolen and cotton machinery. They will supply all parts for repairs, etc. In connection with this purchase the following announcement is made by the Atlas Foundry and Machine Company:

Irvington, N. J., Nov. 15, 1905.

We beg to announce to our customers and the trade in general that we have recently disposed of our woolen machinery business to the Curtis & Marble Machine Co., Worcester, Mass. This includes all the machinery, tools, drawings, patterns and patent rights used in the manufacture of the Parkhurst Burr Pickers, Steel Ring Burr Cylinders, Feed Rolls, Atlas Mixing Pickers, Hair Pickers, Dusters, Feeders, etc., together with the good-will of the business, trade-marks, rights to the use of the name "Parkhurst" and "Atlas" as applied to our machinery, and books of record of the machines already built, etc.

For more than fifty years the machinery built by us and our predecessors, the Atlas Mfg. Co., of Newark, N. J., has been favorably known to woolen and knitting mills throughout the United States and Canada. In retiring from business at this time, we can cheerfully recommend our successors as qualified in every way to supply your needs, and ask for them the same kind consideration as has been extended to us in the past.

Very truly yours,
Atlas Foundry and Machine Co.
By Cyril Johnson, President.

Removal.

Mr. C. S. Powell, general agent of the Westinghouse Electric & Mfg. Company, who has for some time occupied offices at 11 Pine Street, New York, has removed to the offices of the company on the 19th floor of the Trinity Building, 111 Broadway. The Westinghouse Electric & Mfg. Company, in addition to their offices in the Hanover building at 11 Pine Street, occupy the entire 19th floor of the Trinity building.

Recent Textile Patents.

BRAIDING MACHINE. 802,645. Jean Kappeler, Mellingen, Switzerland.

CLOTH CUTTER. 802,943. Carl Schneider, Jersey City, N. J., assignor to Solomon R. Jacobs, New York City.

CLOTH CUTTING MACHINE. 804,548. Jacob Philippsohn, Berlin, Germany.

CLOTH HOLDER. 804,794. Patrick J. Coan, Lawrence, Mass.

CLOTH MEASURING DEVICE. 802,628. Edward L. Clark, Pitcairn, Pa.

CLOTH NAPPING Machine. 803,612. Edwin H. Marble, Worcester, Mass., assignor to Curtis & Marble Machine Co., Worcester, Mass.

COTTON PICKING Machine. 803,572. William B. Edrington, Memphis, Tenn.

EMBROIDERY. Imitation. 802,776. Nicolas Noel, St. Chamond, France.

FIBRES. LIBERATING and Separating. 803,391. Henry S. Blackmore, Mount Vernon, N. Y.

FIBRES. LIBERATING, Separating and Bleaching. 803,392. Henry S. Blackmore, Mount Vernon, N. Y.

LOOM. 803,511. Otto W. Schaum, Philadelphia, Pa.

LOOM HARNESS Motion. 802,659. Charles F. Roper, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

LOOM JACQUARD Mechanism. 802,938. George Naylor, Lewiston, Maine.

LOOM JACQUARD Mechanism. 803,891. Herman Gerber, Providence, R. I., assignor to Crompton & Knowles Loom Works.

LOOM PATTERN Chain Mechanism. 803,844. Benjamin F. McGuiness, Worcester, Mass., assignor to Crompton & Knowles Loom Works.

LOOM SHUTTLE. 803,350. Elvin M. Main, Brunswick, Me., assignor to the Geo. W. Stafford Co., Readville, Mass.

LOOM SHUTTLE Box Motion. 803,869. Henry Bardsley, Providence, R. I., assignor to Crompton & Knowles Loom Works.

LOOM TEMPLE. 802,818. William Lupton, Accrington, England.

LOOM WARP STOP Motion. 803,318. Horace Wyman, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM FOR WEAVING Pile Fabrics. 804,123. Alfred Heald, Philadelphia, Pa.

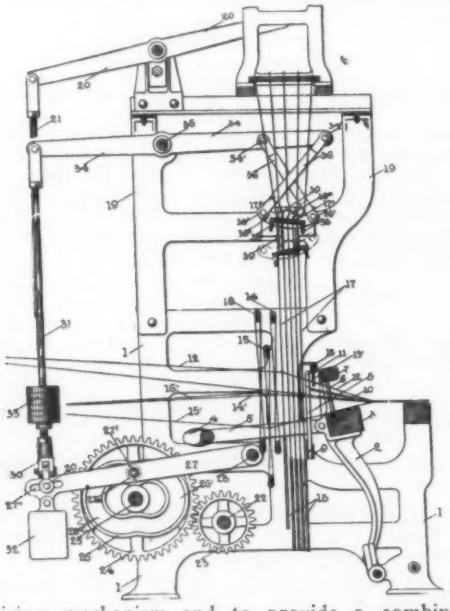
LOOM FOR WEAVING Pile Fabrics. 804,309. Herbert A. Foster, Queensbury, England.

LOOMS. Filling Exhaustion Indicating Mechanism for. 803,654. Everett S. Wood and Jonas Northrop, Hopedale, Mass., assignors to Draper Co., Hopedale, Mass.

LOOMS. Loading Device for Rotary Hoppers of Filling Replenishing. 802,529. Alfred E. Stafford, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

LOOM COMBER BOARD MOTION. 799,284. William Wattie, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

The object of this invention is to improve upon the construction of the comber-board or pile-warp-

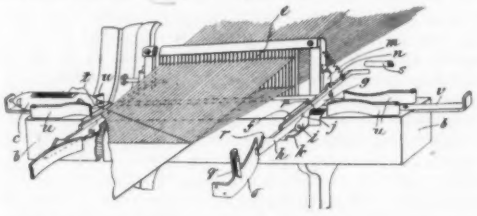


raising mechanism and to provide a combined vertical moving and rocking comber-board or pile-warp-raising mechanism.

The accompanying drawing shows a sectional elevation of a loom-frame and parts of a loom with these improvements applied thereto.

LOOMS. Weft Tension Means for. 802,186. Henry S. Furminger, Mittineague, Mass., assignor of one half to William H. Miller, Springfield, Mass.

The object of the invention is to provide means whereby at the moment the fabric is beaten up by the movement of the lay-beam, the filler-thread running to the shuttle may be grasped on the shuttle side of the fabric and carried forward against the previously-laid filler-threads, and at that point subjected to endwise tension at the moment of the beating-up operation.



SHEEP. Machine for Dipping. 804,730. Horace M. Jordan, Winfield, Iowa.

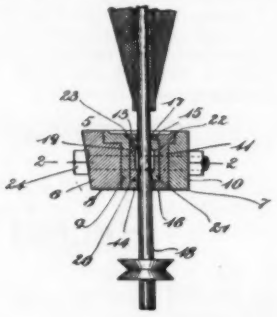
SPINNING MACHINE. 803,551. Malcolm Campbell, Boston, Mass.

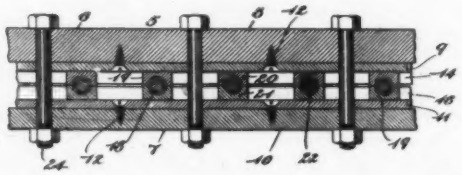
SPINNING MACHINE. 803,665. Malcolm Campbell, Boston, Mass.

SPINNING MACHINE. 803,664. Malcolm Campbell, Boston, Mass.

SPINNING MACHINES. Collar Board for Mules of. 802,877. Herbert F. Palmer, Lewiston, Me.

The object of this invention is to provide a collar-board in which the bearings for the spindles are adapted to be readily and conveniently removed and new bearings inserted or reversed in position, so that what formerly constituted the back of the





bearing may be replaced by the front and vice versa. The wear upon the back of the bearing is greater than upon the front on account of the pull of the yarn upon the spindle in that direction, and also on account of the pull of the belt upon the pulley fast to the spindle and by which it is rotated, being in the same direction—viz., toward the back of the collar-board .

WOVEN FABRIC. 802,942. Hovcep Sarafin, Yonkers, N. Y.

YARN PRINTING Machine. 802,809. Wayne K. Hawk, Falls of Schuylkill, Pa., assignor to Nazar Costikyan, New York City.

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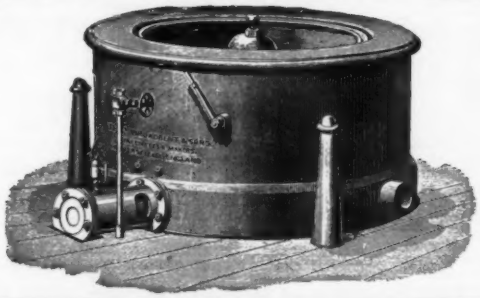

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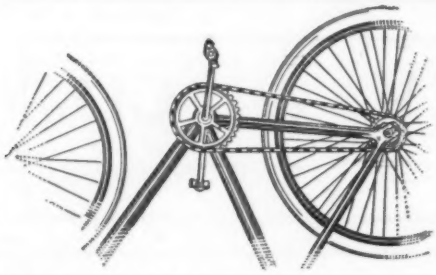

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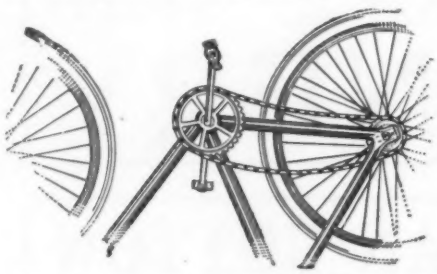

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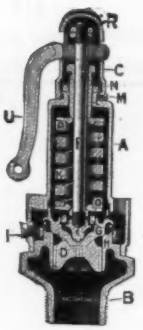

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Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

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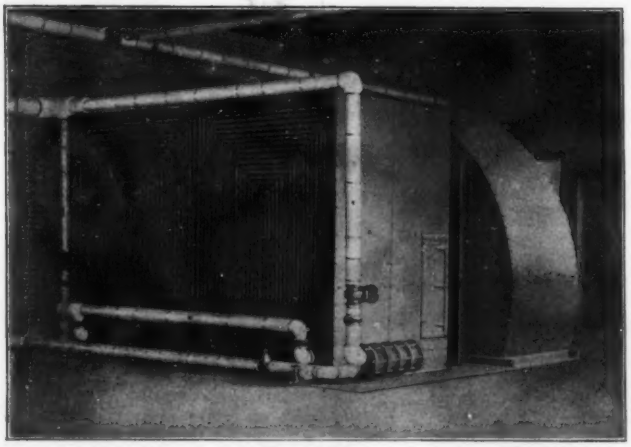

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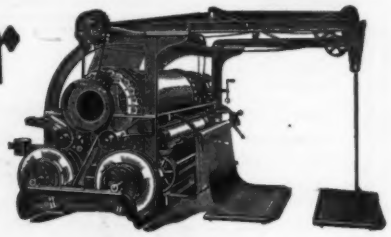
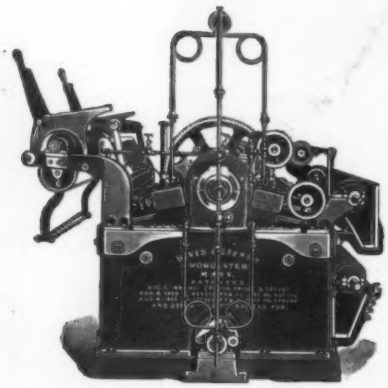
Worcester, Mass.





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Sturtevant, B. F., Co.
Fulling Mills for Woolen Goods.
Hunt, Rodney, Machine Co.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R. & Son.
Garnetts.
Garnett, P. & C., Ltd.
Leigh, Evan A.
Smith & Furbush Machine Co.
Gas Blowers and Exhausters.
Sturtevant, B. F., Co.
Gas Engines.
Jones, Lewis.
Gaskets.
Goetz, Frederick
Gauges.
Crosby Steam Gage & Valve Co.
Lunkenheimer Co.
Walworth Manufacturing Co.
Gears.
Farrell Foundry and Machine Co.
New Process Raw Hide Co.
Gear Cutting.
Farrell Foundry and Machine Co.
Gear Cutting Machine.
Whiton, The D. E., Co.
Generating Sets.
Buffalo Forge Co.
Sturtevant, B. F., Co.
Grease.
Cook's, Adam, Son.
Guides.
Mitchell-Bissell & Co.
Gums.
Standard Starch Co.
Heating.
—See Ventilating.

Heddles.
Steel Heddle Mfg. Co.
Stoddard, Haserick, Richards & Co.
Moisting Apparatus.
Dodge Coal Storage Co., United Telpherage Dept.
Economy Engineering Co.
Yale & Towne Mfg. Co.
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Pearson, J. T.
Wisconsin Mfg. Co.
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Lunkenheimer Co.
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Link Belt Engineering Co.
Jack Spools.
Sweet & Doyle.
Jacquards.
Halton's, Thomas, Sons.
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Chapin, Geo. W.
Charles, W. B.
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Friedberger-Aaron Mfg. Co.
Hepner & Horwitz.
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Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines, Crochet, Etc.
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Eastman Machine Co.
Langston, Samuel M.
Merrow Machine Co., The.
Nye & Tredick Co.
Rodney Hunt Machine Co.
Scott & Williams.
Union Special Machine Co.
Willcox & Gibbs Sewing Machine Co.

Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.
Knitting Machinery.
Boas Knitting Machine Co.
Brinton, H. & Co.
Claes & Flentje.
Cooper, Chas.
Crane Mfg. Co.
Excelsior Knitting Machine Mfg. Co.
Gormley, R. W. & Co.
Grosser Knitting Machine Co.
Guenther, Max.
Hilscher, G.
Jenckes, E., Mfg. Co.
Jones, Lewis.
Koch, Edward W.
Lamb Knitting Mach. Mfg. Co.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Ruth Machine Co.
Scott & Williams.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros.

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Wildman Mfg. Co.

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Brinton, H. & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Guenther, Max.
Ives, Loyal T.
Kolb, Frank E.
Lamb Knitting Machine Mfg. Co.
Manufacturers' Supplies Co.
Mayo Knitting Machine & Needle Co.
Page Needle Co.
Treat, Orlon.
Wardwell Needle Co.

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Sawyer-Mann Electric Co.
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Garland Mfg. Co.

Loom Repairs and Parts.
Glaser Mfg. Co.

Looms.
Crompton & Knowles Loom Works.
Crompton-Thayer Loom Co.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Stafford, G. W., Mfg. Co.
Stoddard, Haserick, Richards & Co.
Whitin Machine Works.

Loopers.
Hepworth, John W. & Co.
Leighton Machine Co.

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Cook's, Adam, Son.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
Lunkenheimer Co.

Lug Straps.
Kelley, W. H., & Co.

Lumpers.
Gerry, George & Son.
Schofield, Wm., Co.

Machinery Dealers.
Jefferson, Ed. & Bro.
Lamb, J. K., Textile Mach. Co.
Schofield, Geo. L.
Stead, Arthur.
Taylor, James.

Machinists' Tools.
Whitin, The D. E. Co.

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Walder, J.

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Curtis & Marble Machine Co.
Elliott & Hall.
Fabric Measuring & Packaging Co.
Parks & Woolson Machine Co.

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American Blower Co.
Boston Blower Co.
Buffalo Forge Co.
Green Fuel Economizer Co.
Massachusetts Fan Co.
Sturtevant, B. F., Co.

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Buffalo Forge Co.
Dean & Main.
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Sturtevant, B. F., Co.

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Greenwood & Bault, R.
Home Bleach & Dye Works.
Lorrimer, Wm. H., Sons Co.
Luzern Cotton Yarn Co.

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Arlington Mch. Wks. (Arthur Birch, prop.)
Butterworth, H. W. & Sons.
Klauder-Weldon Dyeing Machine Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.
Whiteley, William & Sons, Ltd.

Metallic Fire-proof Window Frames and Sashes.
Badger, E. B. & Sons Co.

Metallic Packing.
Power Specialty Co.

Mill Architects.
—See Architects and Mill Engineers.

Mill Brushes.
—See Brushes.

Mill Builders and Engineers.
Ferguson, John W.

Mill Sewing Machines.
—See Sewing Machines and Supplies.

Mill Supplies.
American Supply Co.
Bamford & Smith.
Barker, James.
Buckley's, Benj., Son, Gun Mill.
Crosby Steam Gage and Valve Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Glaser Mfg. Co.
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Lane, W. T. & Bro.
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Stephenson Mfg. Co.
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Thurston, A. G. & Son.
Tucker, W. W. & C. F.
Turner, J. S., Mfg. Co.
Ward & Vandegrift.
Walworth Manufacturing Co.

Motors.
——See Electric Motors.

Napping Machinery.
American Napping Machine Co.
Borchers, Richard C. & Co.
Curtis & Marble Machine Co.
Gessner, David.
Jones, Lewis.
Leigh, Evan A.
Parks & Woolson Machine Co.
Whiteley, William & Sons, Ltd.

Noils (Silk).
Malcolm Mills Co.
Ryle, Wm. & Co.

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Niagara Clip Co.

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Lunkenheimer Co.
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Walworth Manufacturing Co.

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Borne, Scrymser Co.
Cook's, Adam, Son.
Excelsior Wool Compound Co.
Murphy, E. W. & Co.
New York & New Jersey Lubricant Co.
Stephenson Mfg. Co.

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Tucker, W. W. & C. F.

Oil Purifiers.
Patterson, Gottfried & Hunter, Ltd.

Olive Oil and Olive Oil Foots.
Dewsnap, John B., & Company.

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Cohoes Foundry & Machine Co.

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Merrow Machine Co.
Willcox & Gibbs Sewing Machine Co.

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Goetz, Frederick

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Johnson, C. A. & Co.

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Richardson Bros.
Smyth, J. L. N. Paper Co.

Paper Boards.
Smyth, J. L. N. Paper Co.

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Beck, Chas., Paper Co., Ltd.
Langston, Samuel M.

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Crosby & Gregory.
Howson & Howson.

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Beckley, A. J. Co.
Hopkins Machine Works.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

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Pancoast, Henry B. & Co.
Walworth Manufacturing Co.

Pneumatic Conveying.
——See Ventilating.

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Mitchell-Bissell & Co.

Power Transmission Machinery.
American Drying Machinery Co.
American Mfg. Co.
American Pulley Co.
Cohoes Foundry & Machine Co.
Evans, G. Frank.
Farrell Foundry and Machine Co.
Hunter, Jas., Machine Co.
Kilburn, Lincoln & Co.
Klein, Chas. C.
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Plymouth Cordage Co.
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Saginaw Manufacturing Co.
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Sellers, William & Co.
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Textile Finishing Machinery Co.

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Kitson Machine Co.
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Riley, C. E. & Co.
Saco & Pettee Machine Shops.

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Boomer & Boschert Press Co.
Butterworth, H. W. & Sons Co.
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Hart, Charles.
Murray Iron Works.
North Chelmsford Machine Co.
Spence & Rideout.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

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Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Pulleys.
——See Power Transmitting Machinery.

Pulley Covering.
Warren Company, The.

Pumps.
Goulds Mfg. Co.
Humphrey Machine Co.
Rodney Hunt Machine Co.
Textile Finishing Machinery Co.

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Crosby Steam Gage & Valve Co.
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Walworth Mfg. Co.

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Norwood Engineering Co.
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Payne, G. W. & Co.

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Schofield, Wm., Co.
Smith & Furbush Machine Co.

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Tierney, Frank A.

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New Process Raw Hide Co.

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Walder, J.

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North Chelmsford Machine Co.

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Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Regulators (Pressure).
Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

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Cheney Bros.

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Bowes, L. M., Co.
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Bass, E. L.
Hartwell, Geo. E.

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American Mfg. Co.
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Roving Cans.
Hill, James, Mfg. Co.

Ruberoid Roofing.
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Merrow Machine Co.

Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

Secondhand Machinery.
——See Mchry. Dealers, also classified Ads.

Screens (Perforated).
——See under Perforated Metal.
——See Commission Merchants.

Separators.
Draper Co., The.

Sewing Machines and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Bridoux, Chas. H.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Manufacturers' Supplies Co.
Textile Finishing Machinery Co.
Union Special Machine Co.
Walter & Co.
Willcox & Gibbs Sewing Machine Co.

Shafting, Hangers, Etc.
——See Power Transmission Machinery.

Shear Blades.
Heusch, Severin.

Shearing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

Sheet Metal Work.
Barney Ventilating Fan Works.

Shell Rolls.
Thurston, A. G. & Son.

Shoddies.
——See Wool Shoddies.

Shuttles.
——See Bobbins, Spools, Shuttles, Etc.

Silk Machinery.
Arlington Mch. Wks. (Arthur Birch, prop.)
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Leigh, Evan A.
Mason Machine Works.
Stoddard, Haserick, Richards & Co.
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Hall, I. A. & Co.

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Fawcett, Hughes.

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Taunton, New Bedford Copper Co.
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Butterworth, H. W., Sons Co.
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Leigh, Evan A.
Smith, Drum & Co.
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Stoddard, Haserick, Richards & Co.
Ward & Vandegrift.
Whitin Machine Works.

Spindle Tubes.
Bamford & Smith.
Riley, C. E. & Co.
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Spinning Frames.
——See Cotton Machinery.

Spinning Rings.
Draper Company.
Howard & Bullough American Machine Co.
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Spinning Tubes.
Buckley, Benjamin, Sons.

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Defiance Machine Works.

Spools.
——See Bobbins, Spools, Shuttles, Etc.

Spoolers.
Draper Company.
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Standard Starch Co.

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Stirling Co.
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Badger, E. B. & Sons Co.
Burkhard, Thomas

Steam Kettles.
Murray Iron Works.

Steam Pumps.
Goulds Manufacturing Co., The.

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Lunkenheimer Co.
Mason Regulator Co.
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Textile Finishing Machinery Co.
Walworth Manufacturing Co.

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Albany Steam Trap Co.
American Blower Co.
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——See Warp Stop Motions.

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Dodge Coal Storage Co., United Telpherage Dept.

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Draper Co.

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——See Dyeing, Bleaching Machinery, Etc.

Tenter Clips.
——See Dyeing, Drying, Bleaching and Finishing Machinery.

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——See Schools.

Ticketing Machinery.
——See Labeling Machines.

Tiering Machines.
Economy Engineering Co.

Trade Mark Stamps.
Kaumagraph Co.

Trolley Tracks.
Dodge Coal Storage Co., United Telpherage Dept.

Trucking.
McKeon, John F.

Turbines.
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American Mfg. Co.
Plymouth Cordage Co.
Richardson Bros.

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Smith & Furbush Machine Co.

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Philadelphia Textile Machinery Co.
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Schnitzler, Chas. H.
Sturtevant, B. F., Co.

Warpers.
Draper Company.
Entwistle, T. C. Co.

Warping and Beaming Machinery.
Altemus, J. K.
Borchers, Richard C. & Co.
Draper Company.
Entwistle, T. C., Co.
Smith & Furbush Machine Co.
Whiteley, William, & Sons, Ltd.

Warp Stop Motions.
American Textile Appliances Co.
Coldwell-Gildard Co.
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Kip-Armstrong Co.

Washers (Cloth).
Arlington Mch. Works (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Works.
Butterworth, H. W., & Sons Co.
Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

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Ford, J. B., Co.

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Nanz & Co.
Pettes & Randall Co.

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Scaife, W. B. & Sons Co.

Water Purifiers and Filters.
Philadelphia Water Purification Co.
Scaife, W. B., & Sons Co.

Water Softeners.
Ford, J. B., Co.
Philadelphia Water Purification Co.
Scaife, W. B. & Sons Co.

Water Towers.
Caldwell, W. E., Co.
Stevens Tank & Tower Co.

Water Wheels.
Humphrey Machine Co.
Hunt, Rodney, Machine Co.
Leffel, James, & Co.
Risdon-Alcott Turbine Co
Smith, S. Morgan, Co.

Water Wheel Governors.
Cohoes Foundry & Machine Co.
Leffel, James, & Co.
Replogle Governor Works.

Whistles.
Lunkenheimer Co.

Winders.
Altemus, J. K.
Easton & Burnham Machine Co.
Foster Machine Co.
Leigh, Evan A.
Lindsay, Hyde & Co.
Payne, George W., & Co.
Universal Winding Co.
Whiteley, William, & Sons, Ltd.

Winders (Back).
Taylor, James.

Winders (Ball).
North Chelmsford Machine Co.

Winders (Hosiery).
Altemus, Jacob K.
Easton & Burnham Machine Co.
Foster Machine Co.
Leighton Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

Wire Stitching Machines.
Beck, Chas., Paper Co., Ltd.

Wood Pulleys.
Saginaw Manufacturing Co.

Woodworking Machinery.
Defiance Machine Works.

Wool.
Stoddard, Haserick, Richards & Co.
Tierney, Frank A.

Wool Oil Compound.
Excelsior Wool Oil Compound Co.

Wool and Waste Dusters.
Garnett, P. & C., Ltd.
Leigh, Evan A.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

Wool Cleaning Compound.
Ford, J. B., Co.
India Alkali Works.

Wool Combing Machinery.
Crompton & Knowles Loom Works.
Leigh, Evan A.
Riley, C. E., & Co.
Stoddard, Haserick, Richards & Co.

Woolen and Worsted Machinery.
Altemus, Jacob K.
American Drying Machinery Co.
American Tool & Machine Co.
Arlington Mch. Works. (Arthur Birch, prop.
Barker, James.
Birch, Arthur, Arlington Mch. Works.
Brown Cotton Gin Co.
Butterworth, H. W., Sons Co.
Crompton & Knowles Loom Works.
Crompton-Thayer Loom Co.
Curtis & Marble Machine Co.
Fales, L. F.
Firth, William, Co.
Garnett, P. & C., Ltd.
Gessner, David.
Harwood, Geo. S., & Son.
Hood, R. H.
Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
Jefferson, Ed., & Bro.
Kenyon, D. R., & Son.
Leigh, Evan A.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., & Co.
Sargent's, C. G., Sons.
Schofield, Geo. L.
Schofield, William, Co.
Smith & Furbush Machine Co.
Speed & Stephenson.
Stoddard, Haserick, Richards & Co.
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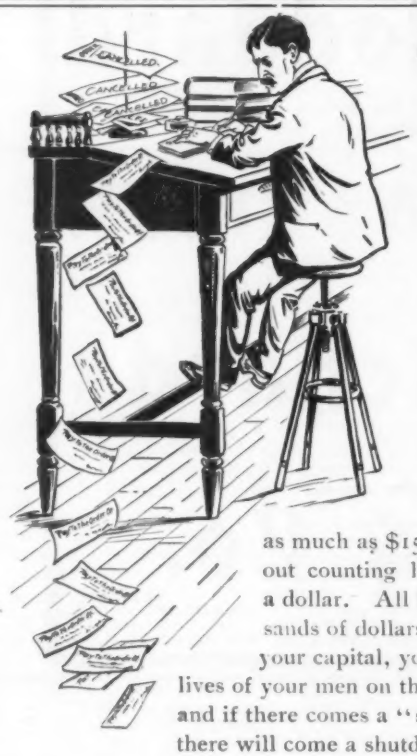

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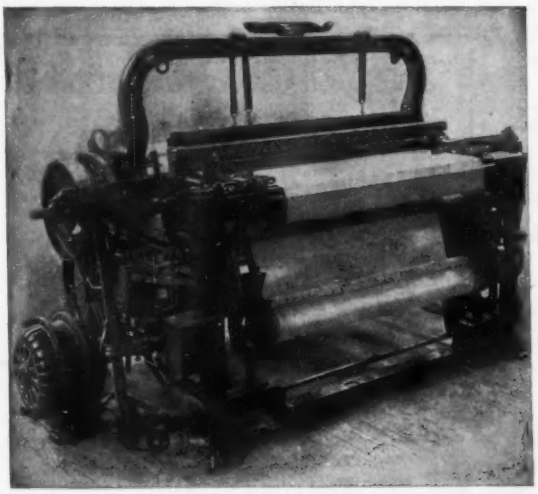

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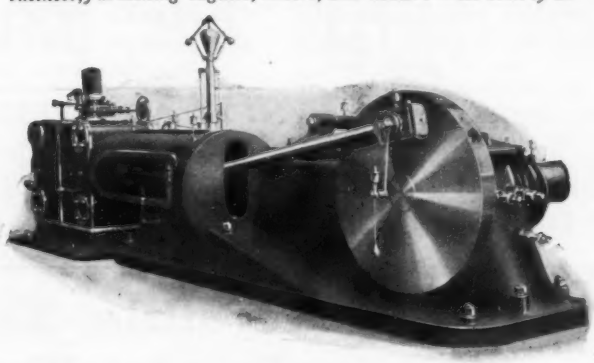

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Worsted and Woolen Machinery
A Large Supply of Worsted Machinery
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Have you ever experienced the need of a central distributing point for the eastern field? Many mannfacturers now carry stocks of goods here. The best located man often gets the trade. You can RENT Large, Centrally Located Warehouses with attendants, of us, or you can BUY our former plant (we now occupy our new factory), well located for manufacturing or warehouse purposes.
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ALL SUPPLIES
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Send for list and state what is wanted.

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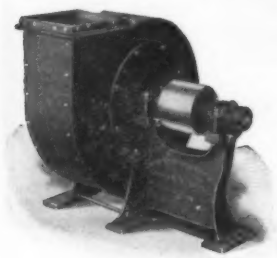
Machinery
GEO. L. SCHOFIELD, 123 No. Front St., PHILA., PA.
Agent for the Weston Hydro Extractor.



Our Reversible Fans with
One-Piece Fan Wheels
will handle any stringy material as well as dust.
They are efficient and lasting, run steady and cool.
Write for Circular M-1.
THE NEW YORK BLOWER COMP'Y,
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Factory, Bucyrus, O. Sydnor Pump & Well Co., Richmond, Va.

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Beaumont's Patent Cop Dyeing BLEACHING and SIZING MACHINES

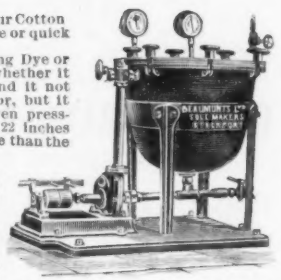
VACUUM MACHINE.

This machine will dye large, hard twisted, twine cops. It will dye or bleach any size of cotton cops. It will scour wool or worsted cops, cheeses and tops. It will scour or dye waste cops. This is a good machine to work in conjunction with the Vacuum and Pressure Machine for washing off, etc.

Vacuum Machines made	No. 1	No. 2	No. 3	No. 4
of Copper and Brass	£30	£45	£85	£130
Machines made of Iron	28	38	65	90

This machine will Dye, Bleach, Size and Scour Cotton Hemp, Woolen, etc., in the form of Cop, Cheese or quick traverse bobbins, any thickness or length.

This Machine will circulate absolutely boiling Dye or Size Liquor through every fibre of the yarn, whether it be cop or cheese which is under treatment, and it not only circulates this boiling Dye or Size Liquor, but it forces it into the fibre of the yarn under an even pressure of 10 lbs., and this is more than equal to 22 inches of vacuum; it is **three times** more effective than the ordinary Cop Dyeing Machinery.



This machine will dye evenly and thoroughly through every fibre of the Cops while the spare Cop plate is being refilled with Cops; **in fact it will do this in six minutes.**

Can be depended upon to dye a perfectly even shade all through the yarn, and will dye the most delicate colors. It will dye silk Cops or treat them with any necessary liquor. It will scour or dye wool tops. It will scour or dye large hemp cops and cheeses. It will scour and dye waste cops. We are the Patentees and Sole Makers.

Machines made of Copper and Brass	No. 1.	No. 2.	No. 3	No. 4.
	£40	£65	£115	£170
Machines made of Iron	35	50	75	110

We supply Two Sets of Skewers and Two Cop Plates with the Machine, whether it is for Weft Cops, Twist Cops or Cheeses.

BEAUMONT'S LIMITED, Brinksway, Stockport, England.

WANTS, FOR SALE, ETC.

Rates, 15 cents a line per issue when replies are sent in care of TEXTILE WORLD RECORD to be forwarded. If replies go direct to advertiser the rate is 10 cents per line per issue. Count seven words to a line and include side head and address. Cash must accompany the order for these ads. If such ads. are "displayed" the rate is $2.00 per inch single column each time.

FOR LEASE OR SALE.

Two story, brick factory building, 60 x 200 feet, with 75 x 85 foot ell, with 150 horse power; light, heat and water, shafting and pulleys; on railroad. Can be leased for term of years or purchased on easy terms. Convenient location. Good white help.

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Seamers. Union Special	5	Button Hole. Wheeler & Wilson	3
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Singer Mfg. Co.	1	Rib Cutter and Turner Cooper	1
" " "	1	Knitting Machines:	
" " "	2	7 two Cylinder.	
" " "	5	5 three Cylinder.	
Wilcox & Gibbs	2	American Raveller Co.	4

For particulars as to above, all of which may be bought at a reasonable price. Address H. D. Morrison, Room 416, 35 Nassau St., New York.

$250.000 Private Capital to Invest

By advertiser who is a private capitalist, and desires to invest the above amount, more or less, in some Eastern enterprise or an established business. Correspondence treated in strictest confidence. Party desiring to correspond with view to business, address "Investor," care Textile World Record, Boston, Mass.

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MURKLAND, CROMPTON & KNOWLES LOOM PARTS.

Grinding and repairing all kinds of Shearing Machinery a Specialty.

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C. WOLFENDEN,

2316 North 2d St., Philadelphia, Pa.

Dealer and Jobber in

Textile Machinery, New and Second Hand

Will buy Odd Lots of Yarn of Any Kind. Send Samples and Price.

Wanted. A good corporation boarding house, by good experienced people. Address "Boarding," care Textile World Record, Boston, Mass.

Superintendent and Designer

WANTS POSITION AS MANAGER. Is an experienced Designer and practical man for the tie-up of looms for weaving ribbons, silk, upholstery and cotton goods; plain and Jacquard cloths. Has had 20 years' experience as a manufacturer and is able to manage a mill in all its branches. Knows the coloring for stripe and figure upholstery; cotton, silk and ribbon novelties a specialty. Further explanation will be given if required. Address, LYONS, care of Textile World Record, Boston, Mass.

KNITTERS FOR SALE

Twelve Paxton & O'Neill Plain Knitters, 160 Needles, 3¾" diameter on Needle, for making plain tubular work. Any reasonable price will be considered. Address "Sale," care of Textile World Record, Boston, Mass.

For Sale.

A Gessner 78 in. wide steam rotary cloth finishing press; can be seen running.

SCHADEWALD MILLS,
3rd and Huntingdon Sts., Phila., Pa.

Where? How? Why? Who?

Where can we get such a machine?
How can we produce this effect?
Is the production of our mill too low?
How can the production be increased?
Why does this machine run badly, and what can I do to fix it?
How is this problem solved?
How is this fabric made?
Why is this fabric better than that?

Such questions and scores of similar ones are constantly arising, and the Questions and Answers Department undertakes to answer those relating to textile matters, free of charge to the best of its ability, and invites such correspondence from subscribers. Address the Boston office.

TEXTILE WORLD RECORD,
299 Devonshire St., Boston, Mass.

BARGAINS FOR SALE

DYNAMOS — ENGINES

1 40 K. W. Direct Connected Set.
1 200 K. W. Direct Connected Set.
1 50 K. W. Direct Connected Set.
2 14x7x10 Deane Duplex Pumps.
100,000 ft. assorted widths single an double Leather Belting.
50,000 ft. Steam Pipe, assorted.
Boilers, Engines, Dynamos, Motors.
Write for Prices.

THOMPSON-BONNEY CO. 45-47 YORK ST., Brooklyn, N. Y.

For Sale. In Pennsylvania, one of the best equipped woolen mills in this country. Address "Penn.," Textile World Record, Boston, Mass.

Wanted, a Dryer. I want a second hand Cleveland dryer in good condition. Address with price and particulars. "Burger," care Textile World Record, Boston, Mass.

Castings Brazed by FERROFIX

Textile Machinery of all kinds Repaired by Our Process.

NO PATCHES.

Enormous Saving Over Cost of New Parts.

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MEN WANTED.

Same rates as Wants, For Sale, etc. Manufacturers will be furnished, without charge, with the names of suitable men who are entered on our list, and can usually supply their wants in this way.

MEN WANTED

Practical Superintendent starting small woolen mill in California desires to interest the following overseers:—**Carder and Spinner** who can take charge of both departments. **Boss Weaver,** who can do his own dressing and fixing. **Boss Finisher,** who can take charge of wet and dry. **Bookkeeper** with woolen mill experience. **Up-to-date salesman** to sell the product direct to the large retail trade. Specialties: Blankets and Flannels for the mining and logging trade; shirt factory in connection with plant. Market for all the mill can produce. Will sell to each overseer $1500 to $2500 interest in the business to right parties. Proposition will pay 20% dividends. Opportunity of a life time to become interested in a profitable business, located in the finest climate in the world. Only practical men need apply, whose record will bear the strictest investigation. Address, with full particulars, "California," care of Textile World Record, Boston, Mass.

Wanted. A man to act in the capacity as millwright and general supervisor over the buildings and steam plant of a large cotton mill. One acquainted with mill construction and drafting of same desired. A good position and good wages to the right man Address Mill Engineer, care Textile World Record, Boston, Mass.

Knitting Foreman Wanted. To manage plant making knitted fabrics used for rubber shoe linings. Must be a man of capacity and experience. Address Linings, care Textile World Record, Boston, Mass.

Position Wanted by a thorough, practical Lamb machinist and knitter. Have got some specials that are practically exclusive. Will mail samples of same to parties looking for such a man. Gloves and mittens a specialty. Have some knowledge of many other knitting machines. Address A. B. C., care Textile World Record, Boston, Mass.

BOSS DYER Wanted.

For piece goods dyeing of 160 broad loom plant, operating shortly after Jan. 1st on ***high grade Woolen and Worsted Dress Goods.*** No yarn, raw stock or indigo handled. Good opening for first-class man, as plant will be enlarged. Give references and specify explicitly and precisely former experience. Box 1279, N.Y. City.

Bookkeeper and Cost Clerk Wanted, must have had experience in Cotton Mill. State age, history of entire career, education, experience and salary required. All communications confidential. Address "C. C. C.," care Textile World Record, Boston, Mass.

Knitting Fixer Wanted. Young man familiar with McMichael and Wildman cuff machines. Pay about $12 a week Also another hand to assist fixer. Address, M. W. F., Textile World Record, Boston, Mass.

Wanted. Young man, thoroughly up in open bleaching and dyeing of cotton piece goods. Must have had experience and be competent to take hold of this work. State full particulars, with references, to "V. R.," care Textile World Record, Boston, Mass.

Wanted. A first class carder for 14 set underwear mill. Only man of experience on both wool and merino yarns wanted. A good position for the right man. Address F. R. N. Co., care Textile World Record, Boston, Mass.

SITUATIONS WANTED.

FOREMAN DYER

desires a position. Is thoroughly acquainted with the dyeing of Fast Blacks, Fancy Colors and Bleaching, and Hosiery and Yarns. Best of references from former employers.
Address, "Reference," care Textile World Record, Boston, Mass.

Wanted for Woolen Mill, a mechanical engineer who speaks German. One who has had some experience in the Textile Industry. State age and experience. Address Mech. Engineer, care Textile World Record, Boston, Mass.

POSITION WANTED

by **Boss Dyer for Knit Underwear** or will take second hand position. 18 years' experience. Will guarantee to produce good results. Address "Knit Dyer," care Textile World Record ,Boston Mass

SITUATIONS WANTED.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufacturers who may be in need of such men may address them in care of Textile World Record, or state their requirements directly, and the addresses of suitable men will be furnished without charge.

Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, is now a member of the Textile World Record staff, and gives special attention to this department. He would be pleased to hear from any of his friends who may be interested.

COTTON SUPERINTENDENTS.

Superintendent of a Cotton Mill; 45 years of age, married; Scotch; familiar with fancy ginghams, denims, flannels, and all kinds of sheeting. Has first-class references. 3318, Textile World Record, Boston, Mass.

Superintendent or boss carder of carding and spinning in cotton mill. Familiar with all kinds of cotton yarns, including high and low stock; familiar with combs; first-class references; 36 years of age; married. 3290, Textile World Record, Boston, Mass.

Superintendent in a Cotton Mill or overseer of carding in a large mill. Would prefer a position in Alabama. 42 years of age; American; familiar with both yarns and cloth. Worked in mills that have made yarns from 7s to 100s, American and Egyptian cotton. Has first-class recommendations. Could take a position at short notice. 3304, Textile World Record, Boston, Mass.

Superintendent of broad silk mill wants position. Age 39; English; married. Worked on mostly plain goods. Could be of good service to some reliable concern just starting up. Has small plant of his own which he would put in as stock with a first-class concern. 3154, Textile World Record.

Superintendent. Would like position in South. Not particular about salary to start. Machinist and thoroughly acquainted with all kinds of card room machinery, also spinning frames. Taken superintendent course in textile school and has had 23 years of practical experience in the mill, mostly on fine yarn work. 3044, Textile World Record.

Superintendent of cotton mill or overseer. Handled all kinds and numbers in yarn mills, cloth mills, colored warps, etc. Speeder, warper, spooler and spinner in the family. Age 48; American; married. 3219, Textile World Record, Boston, Mass.

Superintendent. All kinds of fancy cotton, white and colored, plain and fancy, jacquard and box work, also silks and worsteds. Would take good overseer of weaving position. 3120, Textile World Record.

Cotton Superintendent. Has been boss carder, ring spinner and comber on all kinds of cotton yarns, hosiery yarn a specialty. First-class references. Age 44, married. 3025, Textile World Record.

Cotton Superintendent or assistant superintendent. Worked on linen and union towels and crashes. Father now taking full charge of the business, so he is not needed. Worked on Crompton & Knowles and other machinery used in toweling manufacture. Age 28, first-class reference. 1867, Textile World Record.

Cotton Superintendent wants position. Now engaged, but wishes to change to better condition. Worked on all kinds of plain cotton goods, prints, sheetings, ginghams, etc. Familiar with all kinds of cotton machinery. Will not go West, South or Canada. Age 43, married, first-class references. 2005, Textile World Record.

Superintendent or Superintendent and Designer in a cotton mill. Familiar with all lines of colored and cotton tickings, denims, shirtings, ginghams, lappet and dress goods. Worked on English and American machinery. 36 years of age, married. First class recommendations. 3331, Textile World Record, Boston.

Superintendent or Boss Weaver. American, with 15 years' experience, wants first class position in New England. Understands nearly all cotton looms, also slashing, beaming and quilling. Worked on jacquards, lenos, fancies, lappets, box work and plain. 3351, Textile World Record, Boston.

WOOLEN SUPERINTENDENTS.

Superintendent, age 34; American; married. Worked on fancy woolens. Not employed, and can take position at once. Will not go to Canada or West or South. Would take a good boss spinner place or assistant superintendent, but wants over $4.00 per day. 3104, Textile World Record.

Superintendent. Worked on cassimeres, unions, satinets, overcoatings, horse goods, bed blankets, linings, etc. Understands stock mixing, picking and figuring. Has had full charge of mill. 3074, Textile World Record.

Woolen Mill Manager, formerly of Yorkshire, is open to take a similar position in the United States or Canada. 1976, Textile World Record.

Asst. Agent, superintendent or mechanical engineer in woolen or carpet mill of any kind. Age 30; married. Excellent references. 3178, Textile World Record.

Manager, superintendent or designer. Age 30; English; married. Experienced in England and in this country. Mohairs, all classes of worsted suitings, plain and fancy dress goods. 3184, Textile World Record.

Superintendent of worsted yarn plant or overseer of drawing and spinning. Worked on Australian, English, domestic woolens, mohair, alpaca, spun from 8s to 70s, also carpet yarn. Age 38; American; widower. First-class references. 3221, Textile World Record, Boston.

Superintendent or boss weaver. 15 years' experience in worsted, woolen and silk goods. Graduate of Philadelphia Textile School. 32 years old; married. Good manager of help. American. 3119, Textile World Record.

Agent or Superintendent of woolen or worsted mill. First class man, American, 35 years of age, is seeking position in the East. Understands business thoroughly. Accustomed to all grades men's wear, woolen and worsted, fancy and piece dyes, also dress goods, shawls, steamer rugs, etc. 3377, Textile World Record, Boston.

Superintendent or superintendent and designer. 45 years of age, with experience on fine fancy worsteds and piece dyes, fancy and piece dye cheviots, fancy woolens and worsteds, also mercerized piece dyes. Understands silk manufacture also. 3382, Textile World Record, Boston.

Woolen Superintendent of small mill or assistant superintendent in large mills, or boss finisher, by practical mill man raised in the business. Worked through card room, dressing and weave rooms, and all the departments of finishing. Overseer 20 years; strictly temperate; have family; Scotchman. 3200, Textile World Record.

Superintendent or designer in a woolen or worsted mill. Worked on fine worsted suitings, trouserings, woolen cheviots, meltons, kerseys, coverts, fancy cassimeres, cloakings and dress goods. First-class references. Age 27, married. 1974, Textile World Record.

Superintendent or Designer. American, 37 years of age, married, wants a position in United States. Worked on light and heavy weight woolen and worsted goods, fancy and plain, wool and worsted piece dyes, also pebble worsteds. Been superintendent 6 years and designer 8. 3353, Textile World Record, Boston.

Superintendent or Assistant Superintendent. Worked on fancy and piece dye dress goods, fancy suitings and overcoatings in some of the best New England mills. Experienced in details of manufacturing and cost calculation. Young man, American, married. Best references as to character and executive ability. 3360, Textile World Record, Boston.

COTTON CARDERS.

Carder in Cotton Mill. Coarse or fine, white or colored, hosiery, Egyptian, etc. Age 35; Canadian; married. 3029, Textile World Record.

Overseer of Carding. Has held all positions in picker and card rooms. White and colored goods, 5s to 40s. 3070, Textile World Record.

Overseer of Carding Department. Age 38; English; married. Plain and fancy goods; both combed and carded, Cotton Sea Island, Peruvian, Egyptian, Peeler, etc. Good references. 3196, Textile World Record.

Overseer Cotton Carding or Spinning desires position. Age 47; American; married. Is familiar with all the modern makes of English and American machinery, revolving top flat cards, single and double carding. 2073, Textile World Record.

Overseer of Cotton Carding or superintendent of a small mill. Worked on coarse and fine yarns from 10s to 170s, carded and combed. Will not go West, South or to Canada. Age 37, American. First-class references. 1027, Textile World Record.

Overseer of Cotton Carding. Worked on all kinds of yarn. At present employed in a large mill, but will change for a better position. Familiar with all kinds of machinery. Will not go South. 36 years of age, French. 1991, Textile World Record.

Second Hand in card room. American, 30 years of age, with a number of years' experience in cotton card room work. Has worked in large mills in Fall River and New Bedford, and on prints, fine and coarse yarns, and English and American machinery. Prefers a position in the East. 3341, Textile World Record, Boston.

Overseer of Carding and Frame Spinning. Worked on all kinds of stock, both high and low. 30 years of age, first class recommendations. 1759, Textile World Record, Boston, Mass.

Overseer of Cotton Carding or assistant superintendent. Worked on all kinds of cotton, including cotton waste, sea island and down to sweepings. Familiar with all kinds of carding machinery, first class recommendations, 29 years of age, married. 3323, Textile World Record, Boston, Mass.

Overseer of Carding. American, 26 years of age, worked in all positions in card room up to overseer. Understands nearly all makes of English and American machinery and has worked on white goods, both fine and coarse. 3346, Textile World Record, Boston.

Second Hand in cotton card room. American; 30 years of age, with a number of years' experience in card room. Has worked in large mills in Fall River and New Bedford and worked on prints, fine and coarse yarns, English and American machinery. Prefers a position in the East. Good references. 3341, Textile World Record, Boston.

COTTON SPINNERS.

Overseer of Ring Spinning. Aged 42; American, married. Ginghams, sheetings, awnings, denims, etc.; $3 to $4 per day. 3018, Textile World Record.

Overseer of Cotton Mule Spinning. Understands Mason and English makes of mules. Has worked in mule room sixteen years, five years as second hand and a year and a half as overseer. 28 years old; married; steady and temperate. Would like to get work in N. E. or New York states. Has worked on colored hosiery yarn and filling. 1822, Textile World Record.

Overseer of Cotton Spinning or superintendent of a small mill. Would accept any reasonable offer. Worked on all grades of cotton goods and cotton yarns from 20s to 100s. Familiar with all kinds of cotton machinery. 44 years of age, American, married. 1882, Textile World Record.

Overseer of Mule Spinning who has had a wide experience in large New England mills on yar ranging from 24's to 160's is open to a position. years old; American. Good references. 2003, Textile World Record.

Overseer Spinning, spooling and warping. American, 34 years of age, with experience on sheetings, shirtings, sateens, twills, awnings, ducks, denims, etc., and all machinery used in this work. Capable of taking a superintendent's position, but would accept good overseer's position. 3374, Textile World Record, Boston.

COTTON WEAVERS

Overseer of Weaving. Good experience and reference. Worked on lawns, sheetings, sateens, dimities, fancies, etc. 3188, Textile World Record.

Overseer Cotton Weaving. Plain and a variety of fancies, lenos, etc. Good experience. A young man; English; married. 3147, Textile World Record.

Overseer of Weaving. Worked on sheetings, twills, sateens and fancies. Wants not less than $18 per week. 3157, Textile World Record.

Overseer of Weaving. Worked on all kinds of cotton goods, plain and fancy, including Turkish and cotton towels, also fancy worsted dress goods. Age 39; English; married. 3236, Textile World Record.

Overseer of Weaving or loom fixing. Worked on cotton, woolen, silk. Used to Crompton & Knowles looms, both box and plan, Lewiston looms, Mason, Colvin, Whiting, Patterson, etc. Age 43; Scotch; married. 3216, Textile World Record, Boston.

Overseer of Weaving or designer. Lawns, sheetings, twills, sateens, quilts, bedford cords, lappets. A young man; unmarried. Good experience and first-class recomendation. 3063, Textile World Record.

Boss Weaver wants position. Very wide experience. White and colored, plain and fancy. Understands all kinds of looms. 335, Textile World Record.

Overseer of Weaving. Familiar with shirtings, sheetings, lawns, cambric, ginghams, checks and stripes, union goods, awnings, ducks, drills, light and heavy weight, plain and fancy flannels. 39 years of age, American, first class references. 3257, Textile World Record, Boston, Mass.

Overseer of Weaving and Designing. Worked on plain and fancy goods, also jacquard work. First class recommendations, 33 years of age, English. 1397, Textile World Record, Boston, Mass.

Overseer of Weaving. Worked on ginghams, sheetings, shirtings and dress goods. Familiar with Crompton & Knowles and Mason looms. First class recommendations, 23 years of age. 3299, Textile World Record, Boston, Mass.

Overseer of Weaving. Worked on dobbies, fancy shirtings, madras, ginghams, twills and white goods. Will not go West or to Canada. 47 years old, married. First-class references. 3065, Textile World Record.

Overseer of Cotton Weaving. Worked on lenos, checks, plaids, fancy stripes, drop box and plain looms. First-class references. Will not go West or to Canada. Age 36, English. First-class references. 1855, Textile World Record.

Foreman of Weaving. Worked on ribbons of all descriptions, silk and cotton labels, tapes and lenos. Will not go to Canada or Maine. Age 34, American. First-class references. 3183, Textile World Record.

Overseer of Weaving, superintendent of weaving or designing. Worked on all kinds of cotton dress goods, also suitings. Familiar with all kinds of American and English looms and machinery. Age 41, English, widower. First-class references. 2058, Textile World Record.

Overseer of Cotton Weaving. Worked on all classes of fancy goods, such as lenos, handkerchiefs, and almost everything in the line of cotton. Can do his own designing. Age 35, married. First-class references. 1642, Textile World Record.

Superintendent or boss weaver in a cotton or woolen mill. Worked on sheetings, shirtings, ginghams, plaids, checks, cottonades and figured jeans. Familiar with all kinds of machinery. 45 years of age. First-class references. 1806, Textile World Record.

Overseer of plain cotton weaving, or secondhand. A young American; married. Worked on prints, sheetings, shirtings, cambrics, lawns, twills and sateens. Familiar with Whitin, Mason, Colvin and Draper looms. 3143, Textile World Record.

Overseer of Weaving. Englishman; 33 years of age; married. Worked on fine lawns, sheetings, sateens and fancies, coarse drills, twills, bicycle cloth, automobile cloth for tires. Familiar with Whitin, Crompton, Knowles, Mason, Kilburn & Lincoln and Lowell machines. 3073, Textile World Record.

WOOLEN CARDERS.

Carder and Spinner. Been overseer 32 years, making every variety of cassimere, flannels, overcoatings, cloakings, dress goods, etc. Married; American. 3132, Textile World Record.

Overseer of Woolen Carding. American, 28 years of age, with experience as second hand and overseer in some of the largest mills in New England, wants position in the East. Worked on all classes of woolen goods, and on nearly all makes of woolen cards. 3355, Textile World Record, Boston.

Overseer of Carding. American, 40 years of age, with 8 years' experience as overseer, accustomed to all grades woolen and cotton and shoddy mixes, and to all kinds of woolen carding machinery, wants position in the Nqrth. 3358, Textile World Record, Boston.

Overseer of Carding. Age 26, American, unmarried, with 7 years' experience as overseer, wants position in New England. Had experience on wool, shoddy, silk noils, etc. Understands D. & F., Furbush and Cleveland cards. 3339, Textile World Record, Boston.

Overseer of Woolen Carding. American, 35 years of age, with nearly 15 years' experience as overseer, wants position in the East. Accustomed to cassimeres, cheviots, carriage cloth, blankets, etc., and nearly all machinery used in card room. 3342, Textile World Record, Boston.

Boss Carder in a woolen mill. Worked on all wools, cotton and shoddy mixes, and is familiar with Davis & Furber and Cleveland cards, and all makes of rub aprons and different rub rolls. 29 years of age, American, first-class references. No. 3284, Textile World Record, Boston.

Boss Carder or Spinner. Familiar with all kinds of American machinery, including Davis & Furber cards and mules; also Johnson & Bassett mules. Worked on all kinds of stock from the lowest to the finest grades of wool. 54 years of age; first-class recommendations. 3288, Textile World Record, Boston, Mass.

Boss Carder in a woolen mill. Worked on all grades of woolens, cotton and shoddy mixes. Familiar with all kinds of American machinery. First-class references; 31 years of age; German. 3316, Textile World Record, Boston.

Boss Carder in a Woolen Mill. Worked on satinets, cotton mixed dress goods, kerseys, etc. Could take a position at short notice; 34 years of age; Irish-American. 3319, Textile World Record, Boston, Mass.

Boss Carder and Spinner. Worked on all kinds of woolen and cotton and shoddy mixes; also knitting yarn. Familiar with Davis & Furber cards and mules, Johnson and Bassett, Lombard and Cleveland cards and mules. First-class recommendations; 36 years of age; American. 3302, Textile World Record, Boston, Mass.

Overseer of Carding. American, with experience, wants first class position. Worked on nearly all classes of woolen goods and on machinery used in woolen card room. Best of references. Wants position in the North. $4.00 per day. 3361, Textile World Record, Boston.

Overseer of Carding. American, 27 years of age, wants a position in the East. Is familiar with all kinds of machinery in woolen card room and with cloth for men's and women's wear. 3365, Textile World Record, Boston.

Overseer or Second Hand in card room. 24 years of age. Started as boy in card room. Accustomed to cassimeres, cotton and wool mixes, noils and the lowest grade of goods. Davis and Furber and other makes of machinery. 3371, Textile World Record. Boston.

Overseer of Carding. American, 36 years of age, with 6 years' experience as overseer. Has been working in large mills in Massachusetts and brings good references. Worked on all grades wool, cotton and shoddy mixes. Good manager of help and would consider a first class second hand's position. 3375, Textile World Record, Boston.

Overseer of Carding. 32 years of age, with 16 years' experience in one mill, making all classes of men's wear. Had two years' experience as overseer. Accustomed to D. & F. Cleveland and Furbush cards. 3381, Textile World Record, Boston.

WOOLEN SPINNERS.

Boss Woolen Spinner. Would take a good secondhand job. Used to Davis & Furber and Johnson & Bassett machines. Worked on all kinds of goods. First-class references. 3215, Textile World Record, Boston.

Woolen Boss Spinner, or would accept a good second-hand position. Familiar with all kinds of American spinning machinery; Davis & Furber, Johnson & Bassett, English mules, Curtis and Platt. First-class references; age 48, English. Could take a position at once. 589. Textile World Record.

Boss Spinner in a woolen mill.. 32 years of age, American, familiar with Davis & Furber, Johnson & Bassett and English mules and twisters. First-class references. No. 3275, Textile World Record, Boston.

Second Hand in Spinning Room or fixer. Worked on all kinds of woolen and cotton mixed yarns. Familiar with Davis & Furber and Johnson & Bassett mules. 30 years of age, married, American. No. 3282, Textile World Record, Boston.

Boss Spinner or Twister in woolen mill. Familiar with all kinds of woolen, shoddy and mixed goods. Davis & Furber, Johnson & Bassett and English mules. First class references. 32 years of age, American, 3281, Textile World Record, Boston, Mass.

Boss Spinner in woolen mill. Worked on all kinds of woolen, cotton and shoddy mixed goods. Familiar with Johnson & Bassett. Would prefer Furbush mules. First class recommendations. Age 29, American. 3287, Textile World Record.

MISCELLANEOUS.

Overseer of Dressing, Spooling and Winding. Worked on all kinds of woolen and worsted men's wear and ladies' dress goods. First-class references. 31 years of age, Scotch. 3269, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, Spooling and Warping. Worked on all classes of goods, hosiery yarns, long and short staples from 8s up. Familiar with Sayles & Jenks, Mason, Lowell, Whiting and Saco & Pettee machinery. First class references. 28 years of age, married. 3308, Textile World Record, Boston, Mass.

Overseer of Silk Weaving. Worked on all kinds of plain silk goods. Familiar with Crompton & Knowles, Stafford & Thayer looms. Good references. 3303, Textile World Record, Boston, Mass.

Superintendent of Broad Silk Mill. Worked on all kinds of silk goods, piece dyes, cotton and silk mixtures, or would accept a position as overseer in any department. Age 40 years; married; first-class recommendations. 1726, Textile World Record, Boston, Mass.

Superintendent of a Bleachery or Dye Works or overseer of mercerizing. Worked on all kinds of goods, including bed spreads, towels, ducks, sheetings, drills, cambrics, cotton flannel, bags, shoe lining and window shades. 42 years of age; married; English. 3274, Textile World Record, Boston, Mass.

Assistant Superintendent or in the selling office. Familiar with broad silks of all kinds, ribbons and velvets; also cotton, flax, jute and hemp. Artificial silks, also all kinds of textile fabrics and yarns. First-class recommendations. 1994, Textile World Record, Boston, Mass.

Overseer of dressing. American. Married. Wool, worsted and cotton worsteds. 3165, Textile World Record.

Overseer in winding, spooling and thread dressing. Age 34; Scotch; married. Also had some experience in beaming. Shoe and corset lacing, plain and fancy braids and tapes, fine ginghams and dress goods. 3192, Textile World Record.

Master Mechanic in cotton or woolen mill or cotton finishing plant. American; married. Good experience and reference. 3189, Textile World Record.

Cloth Overseer or second hand in dress room. Englishman, 27 years of age, with experience on all classes cotton goods and the different kinds of machinery used in this work, is seeking position. Good references. 3380, Textile World Record, Boston.

WOOLEN WEAVERS.

Boss Weaver, second hand or loom fixer. Age 30; married. Wants $3 per day. Men's wear, dress goods and all kinds of fancy worsteds. Crompton & Knowles looms. Reference. 3182, Textile World Record.

Boss Weaver and designer. All grades of fancy dress goods, woolen and worsted, cotton and cotton mix kerseys, coverts and venetians. Plain and fancy men's wear. 3181, Textile World Record.

Woolen Boss Weaver. Worked on worsteds, woolens of all kinds, also dress goods. American; 38 years of age; married. 3231, Textile World Record.

Woolen Boss Weaver. Worked on plain and fancy piece dyed worsted, woolen, plain and fancy flannels, also fancy mercerized rain cloths. 29 years of age; Canadian; married. First-class references. 3251, Textile World Record.

Young Man, American, wants position as boss weaver or assistant superintendent. Has worked on fancy worsteds, cassimeres and cheviots. Can also design. 1712, Textile World Record.

Overseer of Weaving or designer. Familiar with all kinds of dress goods, lenos, lappets or any kind of fancy Jacquard weaving. Understands all kinds of English and American machinery. Age 46, English. First-class references. 3267, Textile World Record.

Overseer of Weaving. Worked on worsteds, cassimeres, dress goods, and all kinds of woolen goods. Crompton & Knowles looms. First-class references; American. 45 years of age. 3262, Textile World Record.

Boss Weaver in a woolen mill. Worked for the past twenty years in one of the best woolen mills in Massachusetts and eight years in the same mill for a former company. 57 years of age, married, English, first-class references. No. 3270, Textile World Record, Boston.

Overseer of Weaving. American, 28 years of age, with experience on all classes of woolen goods and on Crompton and Knowles, Crompton and Thayer looms, wants position in the East. 3357, Textile World Record, Boston.

Overseer of Weaving, or would consider a good loom fixing job in a woolen mill. Age 47; Protestant; good references. 3247, Textile World Record.

Overseer of Weaving. 40 years of age, with 20 years' experience fixing and weaving in New England. Understands plain and fancy woolens and worsteds. Crompton and Knowles looms. Good references. 3369, Textile World Record, Boston.

Overseer of Weaving. 36 years of age, with 18 years' experience in a large mill in Massachusetts. Accustomed to woolens and worsteds, high and low grade, and to all machinery used in weave room. Prefers position in or about New England. 3373, Textile World Record, Boston.

Overseer of Weaving, or weaver and designer. American, 40 years of age, with experience on all grades men's wear and all makes of woolen looms, pickers, spoolers, twisters, etc., wants a position in the East. 3379, Textile World Record, Boston.

Boss Weaver in a Woolen Mill, or a fixing job with chance of advancement. Worked on worsted dress goods, cassimeres and cotton warp goods, beavers, etc. First class recommendations; 32 years of age, American. 3329, Textile World Record, Boston, Mass.

Boss Weaver in a Woolen Mill or superintendent of small mill. Worked on ladies' dress goods, men's wear, flannels, blankets, Indian robes, both jacquard and chain loom work. 38 years of age; married; first-class references. 3324, Textile World Record, Boston, Mass.

Boss Weaver in Woolen Mill, or would accept a good loom fixing position. Worked on satinets, cotton and woolen warp goods, sheetings, shirtings and ducks. Also worked on cotton and woolen jute bagging. 45 years of age. 1806, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving or boss dressing. Worked on all kinds of woolen and worsted dress goods. A good manager of help. Could handle both dressing and weaving in medium sized mill. First-class references. 42 years of age. 3293, Textile World Record, Boston, Mass.

FINISHERS.

Overseer of Finishing Room. Cut and full fashioned balbriggan ribbed goods. Familiar with Union Special, Wheeler & Wilson, Willcox & Gibbs, Merrow, etc. Excellent references. Address 2168, Textile World Record, Boston.

Boss Finisher of underwear, cotton or wool mixed goods, who understands Wheeler & Wilson buttonhole machines, Union Button, Union Special, etc., is open to a position in the New England or Middle States. 30 years; American; married. Been employed for a number of years by concern for whom he is now working. Exceptionally good references. 1958, Textile World Record.

Boss Finisher. American. Cheviots, cassimeres, beavers, dress goods, etc. Wants $2.50 to $3 per day. 3123, Textile World Record.

Woolen Boss Finisher. Worked on thibets, cotton and wool warps, satinets, unions, cheviots, kerseys, meltons and cassimeres. Aged 40. Will not go West or to Canada. American. First-class references. 3077, Textile World Record.

Boss Finisher, or would take a second-hand position or wet finishing. Familiar with all kinds woolen and worsted goods, both steam and dry finishing. Age 45, English, first-class references. 2061, Textile World Record.

Overseer of Finishing. Position wanted by man in the prime of life, energetic and a hustler, with 20 years of experience as overseer on all classes of goods from loom to case, in first-class mills. Age 46; married; steady, temperate and reliable. 3333. Textile World Record, Boston, Mass.

Overseer of Wet Finishing. Worked on all kinds of woolen goods, both high and low stock. Would accept a position at short notice. 47 years of age; married; first-class references. 3322, Textile World Record, Boston, Mass.

Overseer of Finishing. Age 30, American, unmarried, with 6 years' experience as overseer, wants position in New England. Had experience on satinets, unions, and all goods where cotton warp is used, also on nearly all machinery used in making these goods. 3335, Textile World Record, Boston.

Overseer of Finishing. 37 years of age, with experience in some of the best mills in New England. Worked on all kinds of woolen and worsted face finished goods and on about all kinds of machinery used in finishing room. Prefers the East. 3344, Textile World Record, Boston.

Overseer of Finishing. Familiar with all kinds of woolen and worsted goods. Will not go West, South or Canada. First-class references; 33 years of age; Swedish. 3295, Textile World Record, Boston, Mass.

Overseer of Finishing. Worked on all classes of woolen goods, both high and low stock. Familiar with all kinds of finishing machinery. Will not go West, South or Canada. Has three workers in the family for weaving and finishing room. 48 years of age; married. 3326, Textile World Record, Boston, Mass.

Overseer of Finishing of piece goods or assistant superintendent, or chemist. Familiar with all kinds of cotton goods, lawns, flannelettes and wash goods. Worked on all kinds of machinery, including Granger and Butterworth machines. First-class recommendations; 31 years of age; married. 3317, Textile World Record, Boston, Mass.

Woolen and Worsted Finisher. 15 years' experience as overseer. Age 39; married. Understands all classes of goods, face goods, undressed worsteds, serges, men's wear, cloakings, dress goods, fancy and plain. Can finish from loom to case. 3367, Textile World Record, Boston.

Overseer Wet and Dry Finishing. American, 30 years of age, with experience on nearly all grades of woolen mixes, cotton warp goods, steam face goods, piece dye, etc. Six years as overseer, with good references. 3376, Textile World Record, Boston.

Overseer of Finishing. Familiar with all kinds of woolen and worsted men's wear, dress goods, including high lustre on ladies' and men's face finished goods, overcoatings, meltons and unions. 39 years of age; American; first-class references. 3271, Textile World Record, Boston, Mass.

KNITTERS.

Superintendent of Hosiery Mill. American, 40 years of age, with a number of years' experience as overseer, would accept a good position anywhere in United States. Worked on cotton and lisle hosiery, fashioned, seamless, lace, embroidered and plain, and on nearly all makes seamless machines and all others used in an up-to-date mill. 3352, Textile World Record, Boston.

Superintendent of Knitting Mill. American, 28 years of age, with experience on flat wool and cotton, all wool sweaters, rib goods of wool, worsted cotton and cotton plaited. Understands nearly all kinds of machinery used in making these goods. 3348, Textile World Record, Boston.

Overseer of Knitting. American, 31 years of age, with 10 years' experience in knitting room as second hand and overseer. Worked on men's gauze underwear, and on plain woolen and plush work. Wants position in the East. 3350, Textile World Record, Boston.

Superintendent or boss knitter. Worked on men's fine balbriggan, ladies', men's and children's wool underwear. Familiar with all kinds of knitting machinery. 27 years of age, American. 3259, Textile World Record, Boston, Mass.

Superintendent of a knitting mill. Worked on cotton, wool, merino and silk, plain and ribbed hosiery and underwear. Will not go South or West. First-class references. American, 42 years old, married. 1722, Textile World Record, Boston.

Foreman and Machinist. Young man with experience on all kinds of knitting and sewing machines in men's, ladies' and children's hosiery. Wants position as fixer or assistant superintendent in a hosiery or underwear mill. 25 years old; single; good references. Open for a position October 15th. 3314, Textile World Record, Boston.

Boss Knitter or Finisher. German-American; single; age 22. Worked on tokes, skirts, globe mittens. Some experience with hosiery. 3240, Textile World Record.

Boss Knitter or superintendent of a hosiery mill. Worked on worsteds and cotton, infants' and misses' and ladies' and men's half hose. First-class references; 37 years of age; American. 3268, Textile World Record, Boston, Mass.

Boss Knitter. Worked on sweaters, toques, both woolen and worsted, cylinder and flat machines. Could take position in one week's notice. First-class recommendations; 33 years of age; married. 3278, Textile World Record, Boston, Mass.

Boss Knitter or Superintendent of knit underwear. Worked on all kinds of ribbed underwear and all makes of machinery. First-class recommendations. 3306, Textile World Record, Boston, Mass.

Foreman of Cutting Department in a knitting mill, or an assistant. Worked on all kinds of knit goods, with four knife or by hand, with knife or shears on fine work. Will guarantee 100 dozen per day. Will not go South or Canada. 24 years of age; American. 3320, Textile World Record, Boston, Mass.

Boss Knitter or second-hand in an underwear mill. Familiar with silk, worsted, cotton and mixed yarn of all kinds. Will not go West, South or to Canada. 32 years of age, American, married. 1819, Textile World Record, Boston, Mass.

Superintendent of Ribbed Underwear Mill. Finisher or salesman. Familiar with all kinds of ribbed goods. All kinds of ribbed machinery. Would prefer a position in the South. Age 38, married, American. 2036, Textile World Record. American. 889, Textile World Record.

Foreman of Finishing in knitting mill. Familiar with plain and ribbed goods for ladies and gentlemen. Familiar with all kinds of sewing machines used in underwear finishing. 38 years of age, married. Could take a position in ten days' notice. 3253, Textile World Record.

A young man, of several years' experience, as foreman knitter on single and double thread flat goods, plushes and fleeces, wants a position of any kind where he will have a chance to learn latch needle knitting. No reasonable offer refused. 3038, Textile World Record.

General Manager or superintendent of ribbed underwear mill. American; married. Been in underwear business eleven years as superintendent and manager. First-class references as to character and ability. 3100, Textile World Record.

Boss Knitter and machinist. Worked on hosiery, mittens, underwear, fancy shirt bands and shawls. Familiar with all kinds of knitting machinery. German, 39 years old, married. 1059, Textile World Record, Boston.

Superintendent or Overseer in Hosiery Mill. All classes seamless hosiery. Understands Branson and Automatic ribbed toe machines. Also Pepper and 3/4 Automatic Excelsior. Age 49; good references. 1441, Textile World Record.

Foreman of Knitting Room. Age 29; American, unmarried. Fleece of all kinds and gauges. Balbriggan from 20 to 30 gauge. Flat work wool goods. Tompkin Bros. and Campbell & Clute machines. Will not go South. 3204, Textile World Record.

Manager of a Hosiery Mill. Familiar with woolen, worsted and cotton and full-fashioned seamless hosiery. 45 years old, American. First-class references. 1657, Textile World Record, Boston, Mass.

MISCELLANEOUS.

Overseer of Dressing. Worked on all kinds of woolen and worsted dress goods. Familiar with all winding machines, twisters and spoolers. First-class recommendations; 40 years of age; Swedish. 3272, Textile World Record, Boston, Mass.

Overseer of Dressing. Worked on all kinds of woolen and worsted men's wear and dress goods. First-class recommendations; 32 years of age; married. 3291, Textile World Record, Boston, Mass.

Boss Dresser wants position as overseer of dressing, spooling, winding and twisting, assistant designer or assistant superintendent. Age 33, Scotch. Married. Textile graduate. 18 years of practical experience on all kinds of woolen and worsted fabrics for suitings, overcoatings and dress goods. First-class references. 3076, Textile World Record.

Overseer Boarding and finishing hosiery. All kinds of men's, women's and children's hosiery, except silk. Age 41; American; married. Can furnish references. 3035, Textile World Record.

Overseer of web drawing, slashing, spooling and warping, on white cotton goods. 36 years of age; Irish; married. 3201, Textile World Record.

Overseer of plain and fancy dressing, spooling, warping, slashing, drawing-in, beaming and slubbing. 41 years of age; married. 3115, Textile World Record.

Overseer or Second Hand of long chain beaming, quilling, dressing, warping and spooling. Familiar with all kinds of fancy colored cotton goods. Age 46 years, Scotch, married. Good references. 3156, Textile World Record.

Overseer Drawing, Spinning or Twisting. American, 35 years of age, with a number of years' experience, wants position. Worked on nearly all grades of yarns from fine to coarse, and on nearly all machinery used in this work. 3345, Textile World Record, Boston.

Overseer of Dressing. American, with several years' experience, wants a position. Is accustomed to all classes of woolen dress goods, and to Davis and Furber machines. 3354, Textile World Record, Boston.

Boss Dyer, Mercerizer and Bleacher. Worked on wool yarns, cotton piece goods, and familiar with slubbing. 43 years of age, married, good references. 3097, Textile World Record.

Overseer of Napping. All kinds of cotton goods, flannels and blankets. Familiar with all kinds of napping machines, double-action napper and felter. Can adjust and set up new machinery. First-class references. French-American, 32 years of age, married. 3261, Textile World Record.

Second Hand in Cloth Room wants position as overseer or second hand. 20 years' experience on all kinds of goods. Understands napping thoroughly. Good references. 3048, Textile World Record.

DESIGNERS.

Designer, woolen and cotton novelties. Used to fancy cassimere, ladies' dress goods, suitings and men's wear worsted, cotton and wool mixes. First-class references. Age 24; Scotch; single. 3212, Textile World Record, Boston.

Designer or boss weaver. Age 35; American; married. Worked on all kinds of worsteds, cheviots, men's wear, dress goods and coat linings. Used to Knowles and Crompton looms. First-class references. Can take position one week's notice. 3210 Textile World Record, Boston.

Designer or Assistant Superintendent. 40 years of age, married, with experience in best mills in New England. Worked on all kinds of dress goods, from the finest to the heaviest. Understands web drawing and twisting, hand dressing and short chain beaming. 3363, Textile World Record, Boston.

Jacquard and Crompton Loom Designer. 30 years of age, with experience. Worked on fancy cotton, Indian shawls, ladies' shawls, cassimeres, etc. An original designer and will send samples of work when desired. Would accept a good position anywhere in the States. 3364, Textile World Record, Boston.

Designer. Familiar with worsteds and woolens of all kinds. Could take a position at short notice. 28 years of age; German. 3264, Textile World Record, Boston, Mass.

Designer or Assistant Superintendent. Worked on woolen and worsted of all kinds and mixed goods. 21 years of age; first-class recommendations. 3296, Textile World Record, Boston, Mass.

Designer. Worked on ladies' dress goods, shirtings and flannels and some jacquard designing; first-class recommendations; 33 years of age; married. 3285, Textile World Record, Boston, Mass.

Designer. Familiar with suspender, elastic and non-elastic; also tapes and dress goods. 29 years of age; first-class references. 3186, Textile World Record, Boston, Mass.

Designer or superintendent. **Age 37; English; married. Experienced in this country and England. Worked on cloakings, suitings, coverts, broadcloths, etc. Wants $30 to $40 per week. Mill closed, and wants place at once. Good references. 3140, Textile World Record.**

Designer. Plain satin, fancy leno, checks, colored and dainties in cotton. Wants $3.50 or over a day. 3043, Textile World Record.

Designer or assistant. Worked on all classes of woolen and worsted goods, worsted mercerized men's wear and dress goods. Familiar with all kinds of woolen machinery. First-class references. Age 26. 3127, Textile World Record.

Designer. Understands all kinds of worsted and woolen goods for men's or women's wear. Could take a position at once. Age 28 years. First-class references. 3264, Textile World Record.

Superintendent of underwear or boss knitter. Worked on all kinds of underwear from fine to coarse. Worked on all kinds of knitting machinery. Would prefer a position in the West. 51 years of age, English, married. Address 3176, Textile World Record, Boston.

Manager or assistant, or executive position in an underwear mill. Worked on fine wool and cotton knit underwear from raw material to finished product. Some knowledge of hosiery. Will not go West or South. 54 years of age, American, married. 3109, Textile World Record, Boston.

Boss Knitter in underwear mill. Worked on all gauges as fine as 28, wool, cotton and silk. Latch and spring needle machines. 39 years of age, American, married. 1669, Textile World Record, Boston, Mass.

Superintendent or boss knitter. Worked on latch needle goods, light and heavy weight underwear only. 38 years of age. American, married. 1812, Textile World Record, Boston, Mass.

Designer or assistant superintendent. Worked on cotton warp flannel coverts, plain and fancy cotton warp, and all wool dress goods. First-class references. 3244, Textile World Record.

Assistant Designer or assistant superintendent. Young man; American. Men's wear, ladies' dress goods, shirtings, silk brocades, etc. Graduate of Philadelphia Textile School, and also has had short experience in mill. 3160, Textile World Record.

DYERS.

Dyer. Worked on piece dyes, wool, cotton, shoddy yarns, rags and union dyes and carbonizing. Wants place at once. Good experience and references. 3092, Textile World Record.

Dyer on all grades of worsteds, kerseys, broadcloths, knit goods of all descriptions, alpacas, mohair lining, ladies' dress goods, worsted yarn, cotton yarn, wool and cotton raw stock. Age 41; English-American. 3214, Textile World Record, Boston.

Overseer of Dyeing on all classes of worsted, woolen and union goods. Can take position on two weeks' notice. Age 26; American; single. First-class references. 3224, Textile World Record, Boston.

Secondhand in dyehouse. Would accept a position as salesman. Worked in first-class worsted and woolen mills. Age 26; American; unmarried. Can take place on short notice. 3211, Textile World Record, Boston.

Boss Dyer in a woolen mill. Has been for the past ten years with one of the largest woolen mills in the Middle States; has first-class references; 47 years of age, American. No. 3286, Textile World Record, Boston.

Foreman for Aniline Black Department, all silks, cotton, black and taffeta umbrella goods. Age 32; English; married; first class references. 3238 Textile World Record.

Dyer. Age 33; Scotch; unmarried. Worked on every kind of woolen cloth, serges, meltons, shoddy worsted and woolen yarn, etc. Wants $5.50 per day. Will not go South. 3064, Textile World Record.

Boss Dyer. A young man; unmarried. Worked on knit goods, raw stock, dyeing wool and cotton. Refers to past employers. 3069, Textile World Record.

Boss Dyer. Familiar with all kinds of ingrains and rugs, cotton and woolen warps; 19 years' experience in this country; first-class references; 47 years of age; English. 3325, Textile World Record, Boston, Mass.

Boss Dyer. Worked on cotton and wool and mixed stock, yarns and piece goods, hosiery, slubbing and raw stock; also scouring of wool; first-class recommendations; 28 years of age; single; English. 3327, Textile World Record, Boston, Mass.

Boss Dyer and Finisher. Familiar with silk, cotton, wool, underwear; also shirtings, scouring, fulling and bleaching. First-class recommendations. 928, Textile World Record, Boston, Mass.

Boss Dyer or Chemist. Worked on all kinds of cotton goods, yarns and piece, corduroy, plushes and velveteens. Familiar with all kinds of machines for bleaching, dyeing or printing. Capable of taking charge of bleaching, dyeing and printing. First-class references; German-American; 40 years of age. 3311, Textile World Record, Boston, Mass.

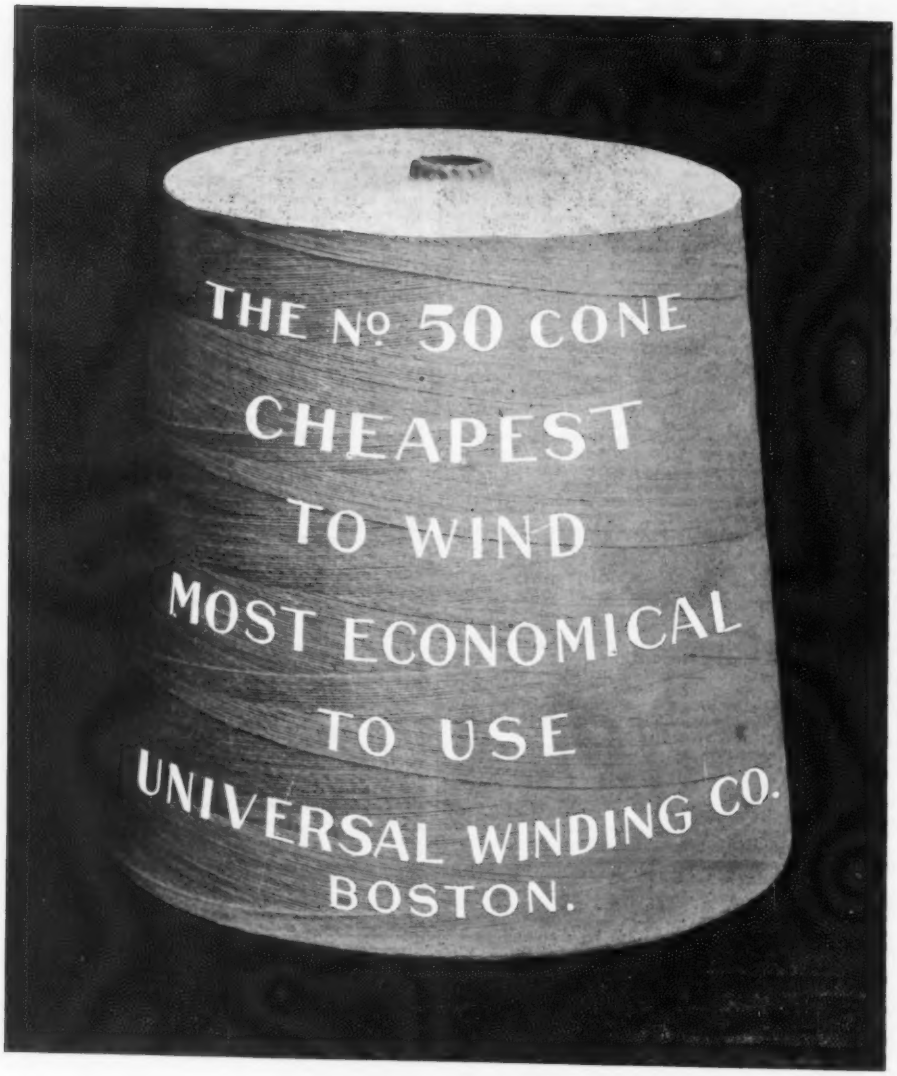
Boss Dyer. Worked on low grade wool stock, piece dyes, cap cloths, kerseys and tricots and unions. First-class references. Will go anywhere for a good position. Would make a good man for a mill on unions. 26 years of age; American. 3256, Textile World Record, Boston, Mass.

Overseer of Wool and piece dyeing. 14 years' experience as overseer. Accustomed to all wool pieces, unions, cotton and shoddy, beavers, cheviots, also sulphur colors, etc. Steady, sober and industrious, with good references. Wants position in the East. 3366, Textile World Record, Boston.

Overseer of Dyeing. American, 36 years of age, with experience on all kinds of worsted and woolen goods, cotton mixes, indigoes and raw stock, is seeking first class position in a good sized mill. Best of references. 3233, Textile World Record, Boston.

Overseer of Dyeing. American, 40 years of age, with experience on woolen, cotton and silk piece goods, unions, woolen and cotton yarns, also aniline black and sulphur colors. Worked on all kinds of machinery used in this work. Prefers a position in the East. 3021, Textile World Record, Boston.

Overseer of Dyeing. American, 24 years of age, with experience on loose wool, slubbing, woolen and worsted yarn, piece dyes and silk. Would accept a good second hand position. Prefers New England. 3378, Textile World Record, Boston.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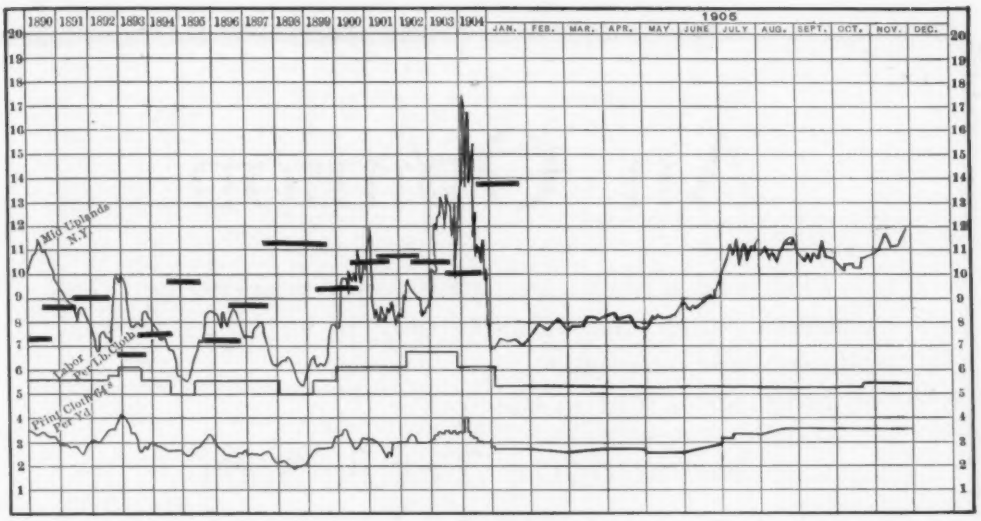

1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904
1905
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Mid. Uplands N.Y.
Labor Per Lb. Cloth
Print Cloth 64 Per Yd.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

Cotton Market.

The past month has witnessed an advance in the price of cotton, marked by several sensational jumps in the quotations for futures, which illustrated perfectly the dangerous control exercised by speculators. The ginner's report of Nov. 14 was taken by the speculators to mean a crop of 10,000,000. This and the unprecedented demand for cotton throughout the world are unquestionably bullish factors. There is no doubt about the demand; there is considerable doubt about the 10,000,000 bales. All the known facts regarding consumption and the practical certainty that there will be nothing approaching a bumper crop this year confirms the belief that a high level of cotton prices is likely to prevail. If this is so the mills must adjust themselves to the new conditions. The world's visible stock is larger than at this time for the last three years, the following estimate for Nov. 24 being made by the Chronicle:

1902	3,263,077 bales.
1903	3,359,589 bales.
1904	3,911,765 bales.
1905	4,535,561 bales.

The maintenance of this surplus depends upon a new crop equal to the yearly consumption. The conviction that no such quantity is to materialize accounts for 12-cent cotton on the face of 4,535,561 bales in sight. The movement into sight from Sept. 1 to Nov. 24 is reported by the Chronicle for a series of years as follows:

1905, Nov. 24	3,713,593 bales.
1904, Nov. 24	4,210,278 bales.
1903, Nov. 27	4,840,715 bales.
1902, Nov. 28	4,956,443 bales.
1901, Nov. 29	4,690,396 bales.
1900, Nov. 30	4,815,708 bales.

These figures are valuable as indicating the size of the crop, but much of their value for this purpose is lost by reason of the increased financial resources of the South. Several years of high priced cotton have done their work and the Southern planter is less at the mercy of creditors than ever before. This accounts for the quick and effective response to the appeals of the Southern Cotton Association to hold cotton for 11 cents on one day and 15 cents on another. How far this thing can be carried can only be determined by time. However far it may go the American spinner is much better able to stand it than is the foreign spinner because the ability of the domestic consumer to pay higher for goods is much greater than that of the foreign consumer.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.

Phone Connections. Works, 2046-48 Amber Street. PHILADELPHIA, PA.

An Opinion

The man without an opinion never succeeds. The opinions of others are valuable only in so far as we may profit by their experience.

In the short time in which

Wyandotte Textile Soda

has been on the market it has met with most unusual success.

The users of this material are all pleased to tell you of its remarkable properties. It is a detergent soda that shows its special worth in the distinctive character which it imparts to the wools and cloths on which it is used.

The true facts as to the special fitness of Wyandotte Textile Soda for scouring wool and washing the finished cloth are easily obtained, and at no expense on your part.

To try is to have an opinion—to know. To see is to believe. It stands every test and costs so little that you cannot afford to be without it. Order from your supply house.

None Genuine except with a card bearing this Trade Mark

In Every Package.

The J. B. Ford Co.,

SOLE MANUFACTURERS,

Wyandotte, Mich.

THIS SODA WAS AWARDED THE HIGHEST PRIZE—GOLD MEDAL—AT THE ST. LOUIS EXPOSITION.

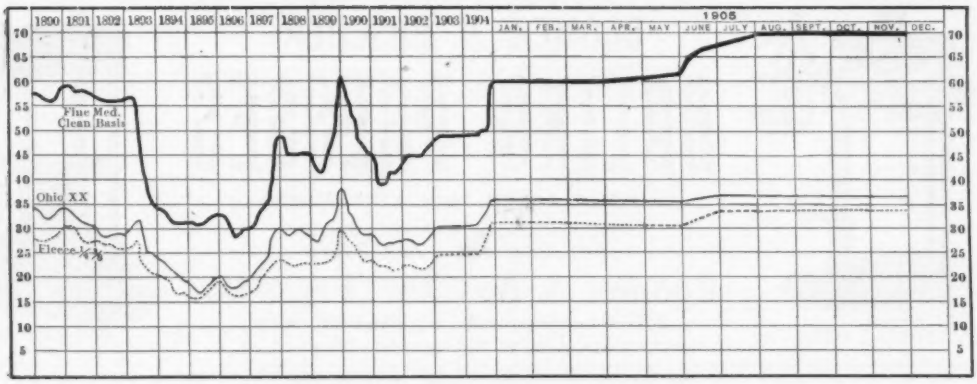


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

Wool Market.

The domestic market has been dull for the past month, as is usual at this time of year just before January 1. Manufacturers are limiting purchases to actual requirements so as to have the stock at the mill as small as possible when the inventory is taken. In some cases there may have been slight concessions in price, but as a rule quotations have been well maintained as holders are convinced of the strong position to which the market has been brought by a large demand, a moderate domestic supply and the restriction of imports by the tariff.

Worsted wools have the call, but the trade is anticipating a revival of the demand for clothing wools on account of the high prices prevailing for other grades. The wool markets abroad are strong. Prices are well maintained and this, by making it more difficult to import at a price, still further strengthens the domestic market.

Pennsylvania, Reading. The Mt. Penn Knitting Company will change name of the company to the Penn Underwear Mills. L. M. Miller, formerly with James H. Wagner, at Mohrsville, will have charge of this mill.

Cotton Yarn Market.

The erratic vibrations of the price for raw cotton have demoralized the yarn market and left spinners and buyers in the dark as to the best course to take. The demand for yarn is steady and while the advance in raw cotton has checked the making of new contracts, the business on old orders is maintaining the volume of business and keeping the trade busy. The future course of yarn prices is linked with the market for raw cotton and no estimate of the situation can be made without taking into consideration the possibilities in that market, which is now controlled to such a great extent by the speculative element. We quote as follows:

Eastern Cops.

6's	18¼
8's	18¼
10's	18¾
14's	19¾
16's	20¼
18's	20¾
20's	21¼
22's	20¾
24's	22¼

(Continued on page 211.)

STANDARD QUALITY COMBED RAMIE TOPS and NOILS a Specialty. RAMIE YARNS in All Numbers for All Purposes.

Wool, Mohair, Camel Hair, Silk, and Ramie Tops and Noils.

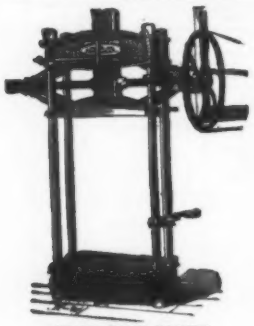
FRANK A. TIERNEY,
Wool, Tops, Noils, Yarns.

Woolen, Worsted, Mohair, Ramie and Silk Knitting Yarns

All Kinds of Yarn for Weaving Purposes. Special Fibres and Novelties for Woolen, Cotton and Silk Manufacturers.
Room 203, Wool Exchange Building, 260 West Broadway, New York.

Wool and Woolen Goods Made NONSHRINKABLE
by the use of "Nevershrink Process."
May be applied at any stage of manufacturing. Write for Booklet.
CHARLES H. HEYER,
1501 Real Estate Trust Bldg. Philadelphia, Pa.

FOR WOOL
Nevershrink
FEARLESS



KNUCKLE JOINT.

BOOMER & BOSCHERT

BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.

Southern Agent, A. H. WASHBURN, Charlotte, N. C.

HYDRAULIC.

DE HAVEN ALL-STEEL RING TRAVELERS

The only All Steel Ring Traveler ever made.

The reign of the Ring Traveler Octopus is over.
Independence and Progressive Methods have clipped his claws.

The DE HAVEN ALL-STEEL TRAVELERS save Cotton, Time and Money. Use them and pay dividends.

MANUFACTURED ONLY BY DE HAVEN MANUFACTURING COMPANY, No. 90-92-94 COLUMBIA HEIGHTS BROOKLYN, N. Y.

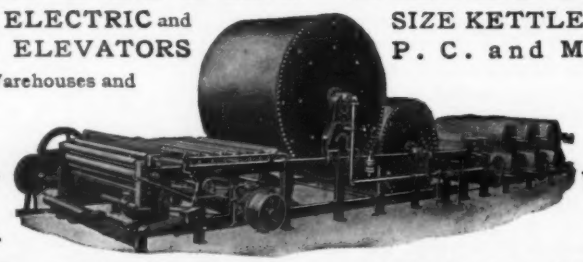
The Success of the Mill Depends on its Travelers.

The COHOES SLASHER.

BELT-DRIVEN, ELECTRIC and HAND-POWER ELEVATORS
For Cotton Mills, Warehouses and Factories.

PULLEY BLOCKS.

OVERHEAD TRACKS.



SIZE KETTLES. REPAIRS for P. C. and M. MULES and EMPIRE LOOMS.

WATERWHEEL GOVERNORS.

The COHOES IRON FOUNDRY & MACHINE CO., Cohoes, N. Y.

A Rigid Examination Reveals No Defects in the

CROSBY SPRING-SAVE GLOBE AND ANGLE VALVE.

NO BETTER VALVE CAN BE MADE.

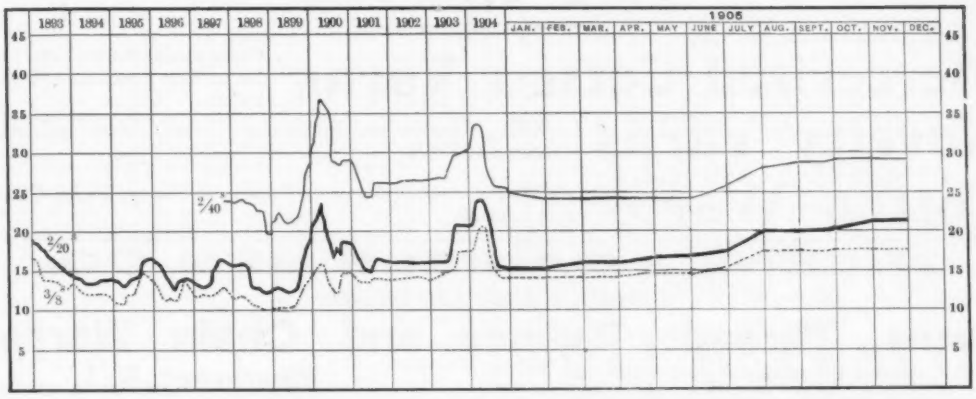
All Working Parts Renewable Without Removal from Piping. ALL PARTS INTERCHANGEABLE. THEY have a full opening through them. WHEN COMPLETED ARE TESTED under more than 400 lbs. pressure. We guarantee them NOT TO LEAK AT HIGH PRESSURES. MADE IN BRASS AND IRON in the various styles furnished to the trade. **Try One or More Valves and BE CONVINCED.**

CROSBY STEAM GAGE AND VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE OF PRICE OF COTTON YARN TO DATE.

Cotton Yarn Market

(Continued from page 209.)

26's	22¾
30's	23¾
34's	24¾
36's	26¼
40's	27¼

On cones, ¾c. more up to 14's; 1c. more from 15's to 22's; 1½c. from 23's to 35's, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12's	23
14's	24
18's	24½
20's	25
24's	26
26's	27
30's	29
36's	31
40's	34
45's	37
50's	39
55's	43
60's	46

Eastern Two-Ply Warps, Carded Peeler.

2/30's	30
2/36's	32
2/40's	35
2/45's	38
2/50's	44
2/60's	47

Egyptian Weaving Yarns. Single Skeins Combed.

30's	36
36's	38
40's	40
45's	43
50's	48
55's	52
60's	55
70's	58

Philadelphia Yarn Market.

The speculation in raw cotton during the last few weeks has been the ruling feature in the market and cotton yarn prices have softened and hardened in sympathy with the market on raw cotton.

The market on twisted yarn has been particularly strong and even; when the cotton market has weakened there has been no recession in price on this class of yarn. With the unfavorable ginners' report, indicating a shorter crop than was expected, spinners have become very conservative and are considering business only at full advance in price.

The demand for yarn has been exceptionally good. Stocks are low and spinners are sold up from two to six months ahead. While we do not look for any break in the cotton market, we believe that if the market should decline yarn prices would not be seriously affected for two or three months. Quotations based on today's cotton market are about as follows:

Southern frame spun cones:—

	Quotations.
7's and Coarser	19
8's and 9's	19-19½
10's	20
12's	20½
14's	21
16's	21½
18's	22
20's	22½
22's	23
24's	23½
26's	24
30's	25

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps,

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

WALCOTT & CAMPBELL SPINNING COMPANY

Fancy Hosiery Yarns
IN ALL COLORS

New York Mills, Oneida Co., New York.

Wiscasset Mills Co. | Patterson Manfg. Co.
Efrid Manfg. Co. | Tuscorora Cotton Mill.

HIGH GRADE HOSIERY YARN
White and Colors. All Numbers

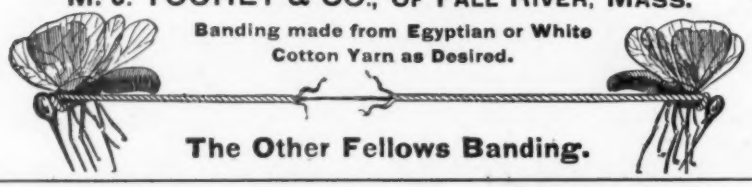
Sewing Twines on Cones and Tubes.

SPECIALTIES IN WEAVING YARN.
Black and white. Double and twist for woolen trade.

CANNON MILLS, 55 Leonard St New York.

THESE MULES CANNOT BREAK THE BANDING
—MADE BY—

M. J. TOOHEY & CO., OF FALL RIVER, MASS.



Banding made from Egyptian or White Cotton Yarn as Desired.

The Other Fellows Banding.

MONUMENT MILLS,

Manufacturers of
White, Colored, Fancy and Double Twist

COTTON WARPS

4s to 60s.

HOUSATONIC, MASS.

Dana Warp Mills

WESTBROOK, ... MAINE

White and Colored Warps 6s to 50s Single and Ply

Mule Cops
From 3 1/2 to 50s from
American & Egyptian Cotton

40's	30
50's	36
Southern high grade mule yarn:—	
Cones.	
10's	21
12's	21½
14's	22
16's	22½
18's	23
20's and 22's	23½
24's	24
Southern frame yarn, lower grades:—	
6's and 8's	18½
10s	19½
Eastern cones (high grade quality):—	
10's	21½
12's	22
14's	22½
16's	23¼
18's	23¾
20's and 22's	24¼-24¾
Skein yarn (mostly Southern):—	
4's and 8's soft	18½
10's to 12's	19½-20
14's to 20's	20½-22
22's	22½
14/2	21
16/2	21½-22
20/2	24
30/2	28
40/2	32
16/3 slack	21
12/3 slack	20
8/3 carpet	18½
8/3 slack	18½
9/4 slack	18½
Warps (Southern):—	
10's to 12's	20
14's	20½
16's	21
20's to 22's	22-22½
26's	24
14/2	21½
16/2	22
20/2	24
24/2	25
30/2	28
40/2	32
Mixed colored yarns (mock twist, half colors):—	
6's to 10's	20-21
12's to 14's	22-22½
16's to 18's	23-24

Mock Egyptian, 2c. advance over white.
Egyptian, 4c. to 5c. above best quality white.

Worsted Yarn.

Spinners continue busy getting out orders. In the early part of the present month and the latter part of last month many orders were placed. These orders were in part for the present light weight season and part for the coming heavy weight season. At the present writing (latter part of November) no orders are being placed and practically none can be expected until after the first of the

PAULSON, LINKROUM & CO.
Commission Merchants
COTTON YARNS OF ALL DESCRIPTIONS
87-89 LEONARD STREET, NEW YORK.
118 Chestnut St., Phila. 210 Munroe St., Chicago, Ill.
Cash Advances, Cash Sales and Prompt Returns.
Consignments and Correspondence Solicited.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS
Cotton Yarns
FOR ALL PURPOSES.
122-124 Chestnut Street, PHILADELPHIA, PA.
Brown Building, 185 Summer Street, BOSTON, MASS.

CATLIN & CO.,
Cotton Yarns
345 Broadway, NEW YORK.
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206 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
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COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

H. D. Salkeld & Bro.
COMMISSION MERCHANTS
With FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED, TURKEY RED, GASSED } COTTON YARNS.

E. D. LORIMER & CO.
COTTON YARNS, MERCERIZED YARNS } ALL NUMBERS FOR ALL PURPOSES
346 BROADWAY, NEW YORK.

MOELLER & LITTAUER,
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey-Red, Fine Gassed Yarns.
109 GREENE ST., NEW YORK

SPINNING MILLS:
NEW BEDFORD, FALL RIVER, TAUNTON.

DYE AND BLEACH WORKS:
FALL RIVER, TAUNTON.

NEW ENGLAND COTTON YARN CO.

KNITTING AND
WEAVING YARNS

EVERY DESCRIPTION AND FORM
Gray, Bleached, Dyed and Mercerized
600,000 MULE AND FRAME SPINDLES

C. MINOT WELD, President.
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ARTHUR R. SHARP, General Manager.

Executive Office:
141 Milk Street, Boston.

BRANCH OFFICES:
ALBANY, Broadway, cor. State St.
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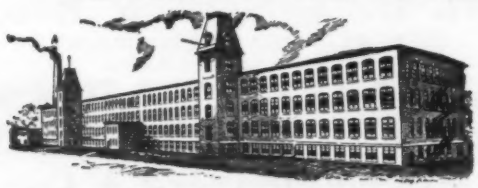
NEW YORK, 73 Worth St.
PHILADELPHIA, 213 Chestnut St.

C. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS



Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING CO.,

Formerly E. JENCKES MFG. CO.

Carded and Combed Cotton Yarns for Weavers and Knitters.
Double and Twist Yarns for Woolen Trade.

PAWTUCKET, R. I.

GRANT YARN CO.,

COMBED AND CARDED COTTON.

YARNS 40's and above. AND
FITCHBURG, MASS. WARPS

Indian Orchard Company
Cotton Warps and Yarns.
In Gray and all Colors, Single or Two or more Ply, and Cable Cord.
Novelty Yarns.
in Various Patterns, Colors and Twists.
Carded and Colored Cotton.
For Mixing with Wool, Machined or in Roving.
Indian Orchard, Mass.

coming year when buyers will again be on the market covering further for the heavy weight business which has in the meantime developed. Prices are held very firm, but spinners having reached their high level of values are inclined to accept new business readily on a basis of the values thus established provided they have spinning capacity to fill them.

Spinners anticipate that later it will be impossible to make prompt deliveries and are urging weavers to take in as much yarn as is possible during December. It is also noticed that spinners accepting orders at this time are insisting that contracts for yarn be signed before they accept them. The reason for this is because the spinners on accepting a given order cover immediately for the raw material—also some having booked orders several months ahead for all they can make are unwilling either to make prices or accept orders for yarn. It is noticed, however, that yarn salesmen are still working for orders. Wherever job lots are possible at any concession they are quickly bought.

The wool man knowing the condition of the market on combing wools is wondering where the wool is to come from to take care of a continued demand for worsted yarn. There are two or three answers to this question. In the first place spinners cover themselves ahead of the market as far as they can and then again Australian and South American crossbreds are as cheap as the domestic article of the same grade. The situation is certainly a strong one but not an impossible one, inasmuch as yarn values are today established on a high level which enables spinners to secure raw material supplies from markets other than those in our own country. Yarn values have advanced from 20 to 25 cents per pound over those of one year ago, the coarser grades taking the highest advance.

The English and French spinners have both enjoyed good business although if the French spinners depended entirely upon the hosiery manufacturers their business must have been slow, as the prices quoted were much beyond the ability of the knitter. To overcome these high prices the knitters, both of underwear and hosiery, are buying French spun worsted yarn made of 50 per cent. Peruvian cotton and the remainder wool. This is done in order to meet the prices at which the buyers demand hosiery shall be sold. Many of the French spinners have been getting some good orders for single yarn for filling, as many of the weavers have been using woolen spun warps and worsted filling. Then again there has been much business secured for 24s and 26s French spun yarn for twisting

American Cotton Yarn Exchange
COMBED and CARDED
COTTON YARNS
From Northern and Southern Mills.
American, Egyptian,
Peruvian and Sea Islands.
ARNOLD B. SANFORD, Pres. and Gen. Mgr.
OFFICES:
67 CHAUNCY STREET - - BOSTON

LINEN YARN IMPORTER.
HUGHES FAWCETT, 115 Franklin Street, NEW YORK.
Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

Mercerized and Plain
Skein, Warps,
Cones, Cops,
Tubes
COTTON YARNS
426 and 428
Market St., Phila.
Theo. H. Strouse & Co.

Ballou Yarn Co.
PROVIDENCE, R. I.
Harness and Seine Twines and other Job
Gassing, Winding, etc. All Numbers.
GASSED .·. YARN .·. SPECIALTIES

CELEBRATED BRAND PYRAMID LACINGS
For Underwear, Overshirts and Sweaters,
JOHN CATHCART & CO.,
115 Franklin Street, NEW YORK.

LACINGS FOR OVERSHIRTS and UNDERWEAR.
Tipped and Tasseled.
Hepner & Horwitz, 30 Howard St., N. Y.

F. C. BARTON
MANUFACTURER OF LILY BRAND NARROW FABRICS
RIBBONS, TAPES, BINDINGS & NON ELASTIC WEBBINGS
54 FRANKLIN STREET, NEW YORK

Pocasset Worsted Company,

WORSTED YARNS

IN THE GRAY.

Mills at
Thornton, R. I.

Office
100 Boylston St., Boston, Mass.

French System. **B. F. BOYER CO.,** Bradford System.

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, Delaware and Cooper Streets. CAMDEN, N. J.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,
EATON RAPIDS, MICH.

EDDY & STREET,
Cotton, Woolen,
Yarns and Braids
Worsted, Spun Silk.
PROVIDENCE, R. I.

RICHARD CAMPION,

SELLING AGENT FOR

Bristol Worsted Mills,
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300 Chestnut Street,
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THE MALCOLM MILLS CO.,

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FANCY YARNS and POLISHED THREADS.

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BUY YARNS OF

LUZERN COTTON YARN CO.,

WILKES BARRE, PA.

SUPERIOR

MERCERIZERS

ARTHUR FAWELL

Woolen and Worsted

YARN DYER

Nos. 110 and 112 Turner St., Phila.

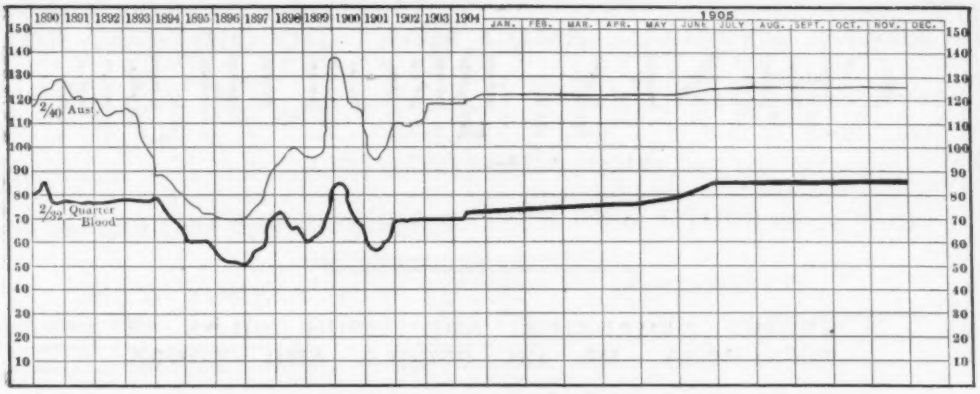


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

purposes; 24s worsted being twisted with 80s combed Sea Island. It takes 100 pounds 24s worsted and 20 pounds 80s to produce the thread for which there has been so great a demand for mercerized cloth. The weavers have been buying this yarn twisted, but now weavers are buying their yarn and twisting it themselves.

The weavers have the light weight season well in hand and those making worsted cloth have more orders than they can fill without conflicting with the heavy weight orders. Some weavers have scaled down their orders to take care of the heavy weight business and some will be unable to fill them before March. The cloths selling at present are cotton worsteds and mercerized worsteds which have been largely ordered and on which the bulk of the business has been secured. Then again there has been a great demand for solid worsted cloth in which no cotton or substitute is used.

The light weight business has developed, but the coming heavy weight season is beyond forecasting at present. The advance on cloth is way beyond any advance yet asked and prices for heavy weight cloth today are about on a parity with prices maintained under the old McKinley law.

We quote:

2/4s Australian	1.28
2/40s Delaine	1.23
2/36s 1/4 to 3/8 Blood	.97 1/2-$1.00
2/32s 1/4 Blood	86
2/20s 1/4 Blood	.80-85

Woolen Yarn.

Spinners of woolen yarn are not prospering. The business being secured is in spots. Weavers that have been running the cards of spinners for several years are unable to keep their own cards going.

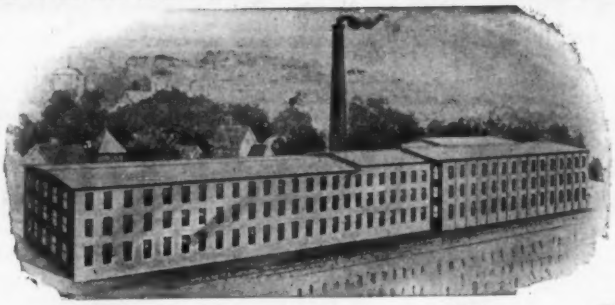
Some of the cloth buyers purchased cloth made from woolen spun yarn because of the high price of worsted cloth, and tried to put it in suits and sell it. But their salesmen returned from their trips and found it impossible to sell this style of clothing, for the buyers simply canceled their

QUEENSBURY MILLS WORCESTER MASS.

MOHAIR TOPS AND YARNS FOR WEAVING

LUSTRE YARNS FOR SERGE LININGS

ALPACA YARNS



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DRESS GOODS YARNS
KNITTING YARNS
WORSTED YARNS

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TRAMS, ORGANZINE AND SPUN SILKS IN THE HANK, OR ON SPOOLS AND CONES.

SILKS FOR ELECTRICAL USES, INSULATION AND SPECIAL PURPOSES MADE TO ORDER.

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Pure Dye and Fast Colors Warranted.

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Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

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ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

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Neither drips on floor nor spatters on card clothing and drawing cans like fluid oils.
One application lasts four or five times longer than fluid oil and keeps boxes cooler.

Free Sample Sent by Paid Express Write Today

NEW YORK & NEW JERSEY LUBRICANT CO.,
14-16 Church St., New York City. Department "L"

orders, giving as a reason that they could get no orders and hence did not want the cloth. For all that the weaver that is imitating worsted cloth with woolen yarn is having a good business, and we know of several that are buying spinning machinery to produce their own yarn. The hosiery manufacturers have been buying more or less merino yarn and some good orders have been secured. The manufacturers of French flannels and eiderdown have been using much yarn of late and this will continue for some time.

The makers of stockinet for the rubber boot trade do not expect to place orders before February, but it is said that there is no regular season and the knitters are liable to start up any time. The worst has been seen by the woolen yarn spinner as after January 15th much business will be secured for backing worsted cloth and in many ways it will be substituted for worsted. The knitters throughout New York State are busy, but are placing no orders for yarn or material for the coming season. When they start up after the first of the year many orders must be placed for yarn and material. It is said that many are accepting orders for underwear at the old prices, notwithstanding the advance in all kinds of material. Buyers are trying to place orders at 5 to 8 cents per pound less than the market and make prices meet the ideas of customers for their products. It looks at this time as though there would be some adjusting of values later.

The experience of last year when manufacturers agreed to sell the same grade as previously sold at same price seems to have been lost on some buyers. The knitters sold at a price expecting wool would decline. This did not come about and consequently when the products were delivered the quality was way off. The buyers complained and the manufacturers frankly stated that they must have known that they could not deliver the same grade of garment at the same price when material and yarn had advanced 30 to 40 per cent. They said that they were the same to enable the buyer

WILLIAM B. CHARLES,
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Cotton Cloth,
Silesia, Sateens,
For the Underwear Trade.
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WOOLEN YARNS,
Carpet Backing and Rug Yarns a Specialty.
ARCOLA MILLS,
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Knitting and Weaving
YARNS.
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Large Assortment.
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COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

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YARNS Solis, Boston.

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SUMMER STREET.

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Tapes, Webbing and Bindings.

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to assure customers on that point. Some knitters refused to lower the grade of their garment and refused to accept orders except at an advance. In some instances it seemed as if they would secure no orders and some large plants were idle, but the wisdom of the move was proved later when the mills which were idle started up and are running day and night to get out garments at satisfactory prices. It is said that some knitters are selling at old prices, but how this can be done is not in the province of the writer to explain.

Some spinners say they have made low prices on yarn and have then had to pay more for cotton which completely upset all calculations.

It is doubtful if those who secured the government contracts came out satisfactorily as the price of cotton advanced before the orders were given. Some of the wool dealers that operated early paid full market prices, but those who waited were able to secure the same wool for much less money. The first cables from Melbourne stated that prices were maintained at last year's level and that Americans were buying freely. Some thread waste is selling and also the other wastes that are now on the market. The spinners are thankful this year if they can hold their own as this has been one of the worst seasons for years. Wool has been high and buyers were unwilling to pay living prices.

Spinners are looking forward to a business in the future which will again set all machinery in motion.

TUSSAH SILK WASTE

Cotton, Wool, Flax and Jute Waste. Worsted, Woolen and Mercerized Cotton Yarn.
Worsted, Mohair, Camels Hair, Silk, Flax and Ramie Noils. Garnetted, Worsted, Woolen, Cotton and Silk Stocks.

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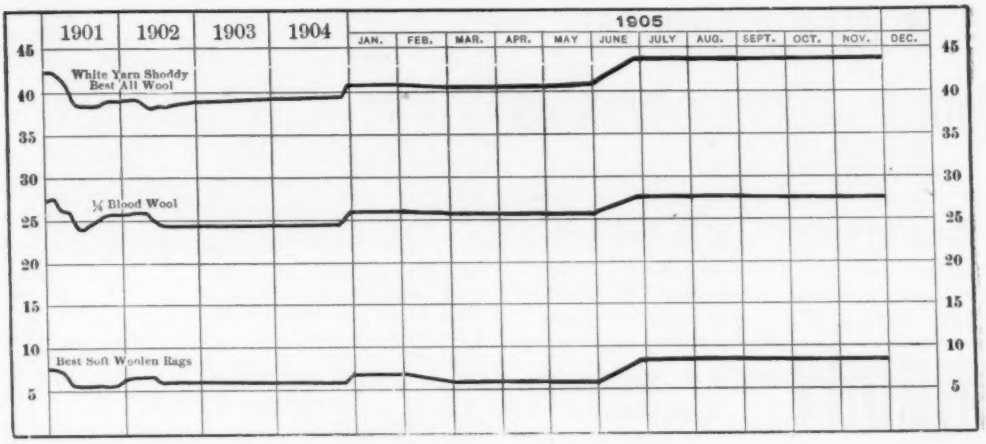

CHART SHOWING RANGE OF PRICES OF SHODDY, RAGS AND NOIL.

Rag and Shoddy Market.

There are some signs of an improvement in the rag and shoddy market. In spite of the long continued dullness rags have remained in remarkably small supply and buyers have found it by no means a buyers' market. The improved demand has encouraged the dealers, who are now looking forward to a change that will give them a share in the prosperity which all other branches of the textile industry are enjoying.

As yet orders are given sparingly as the mills and shoddy manufacturers are proceeding cautiously. The approach of the heavy weight season is partly responsible for the improvement, but the necessity of providing the consumer with low priced woolen clothing is a more influential factor. The demand for worsted effects continues, but the high price of wool, and the fact that the consumer is not finding cotton worsteds wholly satiefactory are leading consumer, retail clothing manufacturer and cloth maker to turn to the cheviot and cassimere finish. If high prices for wool continue, as now seems probable, it seems as if rags and shoddy must soon have their day.

We quote as follows:

SHODDIES AND EXTRACTS.

White yarn, best all wool	44-47
White knit, all wool, best, fine	35-40
White knit, No. 2	30-35
Light yarn, extra fine	30-35
New pure indigo blue	28-30

Merino.

Fine light, all wool, No. 1	24-27
Medium light, all wool, No. 1	15-17
Medium light, all wool, No. 2	15-17
Fine black, all wool	25-27
Fine dark, all wool, best grade	22-25
Medium dark, all wool, No. 1	18-20
Medium dark, all wool, No. 2	15-16
Red knit stock, strictly all wool	20-22
Red flannel, all wool	20-22
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2	15-18

WOOLEN RAGS.

Fine merchant tailors, all colors	10-11
Choice light colors	13-14
Browns	12-13
Blacks	8½-9½
Fine blues, plain	9-10
Fine dark	12-13
Medium dark	7-8

Worsteds.

Blue	16-18
Black	21-23

Serges.

New black	16-18
New blue	15-17

Flannels.

New scarlet	19-20
New blue	15-16
Cloakings	3-4

SOFTS AND KNIT STOCK.

Soft woolens, best	10-11
Old white flannels	22-23
White flannels, No. 2	11-12
Old red flannels	12½-13
Light blue flannels	7½-8½
Old blue flannels	9½-10
Fine worsteds, new black	
Old plaids	7-8½
White stockings	22-23
White hood stock	22-24
Clear hoods	9-10
Red stockings	12-13
Blue stockings	7½-9
Fancy stockings, No. 1	9½-11
Gray stockings	10½-11
Black stockings	10½-11½
Knit stock comforters	7-8
Red knit	12½13
Light gray knit	10½-11
New light fancies	14-15
New fancies	11-12

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COTTON YARNS.

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

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Merinos.

Light, fine	16-17
Light, coarse	7½-8
Fine, dark	13-14
Coarse, dark	7½-8
Blue	11-12
Blue—seamed	
Black—seamed	15-16
New black	18-20
Small	4½-5
Bunting	7-10

FLOCKS.

Shear, fine white, all wool	10-12
Fine indigo blue, all wool	7-8
Fine black, and blue, all wool	6-7
Fine dark, all wool	2½-4
Gig, fine, all wool	2-3
No. 1 black, all wool cut	6-10

COTTON WASTE.

No. 1 Spinners	10-10¼
No. 1 Machine	6¼-6½
No. 2 Machine	5-5¼
Machine Cop	9-9½
No. 1 Cop	8¾-9
No. 1 Card	8-8½
No. 2 Card	7½-8
No. 1 Oily Card	5½-6
No. 2 Oily Card	4-4½
Peeler Combing	10-10¼
Egyptian Combing	10-10¼
No. 1 Linters	5½-6
No. 2 Linters	4½-5
White Clips	4½-5
Colored Clips	1½-2¼

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.60-4.05
Citric, domestic	38-38½
Oxalic	5-5½
Sulphuric, 60 deg., 100 lbs.	1.10-1.30
Muriatic, 18 deg.	1.50-1.60
Tartaric crystals	29-29½

Miscellaneous Chemicals.

Acetate of lime, gray, 100 lbs.	2.35-2.40
Alum, lump	1.75-1.85
ground	1.85-1.95
powdered	3.00-3.25
Aqua ammonia, 16 deg.	3¾-4
Ammoniac, sal., gray	6-6⅛
Borax, bbls.	7¾-8
Brimstone, crude, foreign ton	22.25-22.75
Copperas	57½-62½
Cream tartar, crystals	23½-23¾
Fuller's earth, lump, 100 lbs.	80-85
powdered	80-85
Glauber's salt	40-50
Potash, chlorate, crystals	8½-9½
powdered	8¾-11
carbonate	3⅞-4¼
Soda ash, carbonate, 48 per cent	1.20-1.30
high test	1.00-1.25
Soda, bicarbonate, English	
American	1.30-1.70
Soda, caustic, domestic, 60 per cent.	1.85-1.90

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The question of rope drives should have the consideration of the manager of every plant that uses any considerable amount of power.

The use of a well planned drive of this kind means ease and economy in transmitting large amounts of power, with practically no restriction as to distance or direction. It also means assurance of safety from fly-wheel breakages caused by the breaking of the main belt. It secures the advantages of quietness and absence from electrical disturbance, absence of slip and steadiness of running, not to be had in a belt driven plant.

It should be borne in mind at the same time that the many advantages of the rope drive are secured at a cost both of installation and maintenance, lower than that of any other system.

Our booklet on "Rope Drives" covers the subject fully. Shall we send you a copy.

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Rings for Dye Houses

Catalogue on application.

Sal. English	87½-90
Sal. American	60-70
Sulphate, alumina	90-1¾
Vitriol, blue	5.35-5¾

Dyestuffs.

Acetate of soda	4¼-4½
Acid, picric, best crystals	22-28
tannic, commercial	35-37
Albumen, egg	50-70
blood	20-27
Alizarine, red	15½-16½
Aniline oil	10-10¼
salt crystals	
Antimony salt, 65 per cent.	13½-14
Bichloride of tin, 50 per cent.	10
45 per cent.	9½
Bichromate of potash, American	8¼-8½
Bichromate of soda	6¼-6½
Bisulphate of soda	80-1⅜
Cutch, mat	4½-5
boxes	5-7
Dextrine, imported potato	6½-7½
corn	2.55-2¾
Divi-divi ton	35.00-40.00
Flavine	23-40
Fustic, stick, ton	18-20
young root	31.00-35.00
Gambier	4¼-4½
Hypo. of soda, Am. bbls. cwt.	1.40-1.50
Indigo, Bengal, low grade	52½-55
medium	60-65
high grade	75-85
Kurpah's	47½-60
Gautemala	35-70
Manila	43-45
Madras	42-45
J. (Synthetic)	18-20
Indigotine	95-1.80
Logwood, stick, ton	15.00-19.00
roots	14.00-16.00
Madder, Dutch	7⅝-10⅛
Muriate of tin, 36 degrees	9-9¼
52 degrees	15-15¼
Nitrate of iron, commercial	1¼-1½
Nutgalls, blue Aleppo	25
Persian berries	7
Phosphate of soda	1.90-2¼
Prussiate of potash, yellow	
Quercitron, ton	18.00-20.00
Starch, corn, pearl, bbls.	1.90
corn, pearl, bags	1.75
potato	3¾-4
rice	6½-7½
wheat	5-6
Stannate of soda	10-20
Sumac, Sicily, No. 1, ton	45.00-46.00
Sicily, No. 2, ton	42.00-43.00
Tapioca flour	1.90-3
Tin crystals	21-22½
Tumeric, Madras	4½-4¾
Zinc dust	5¾-6

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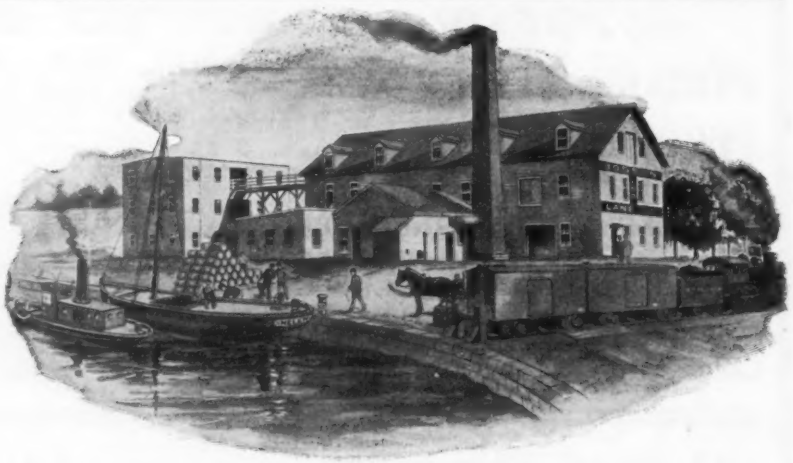

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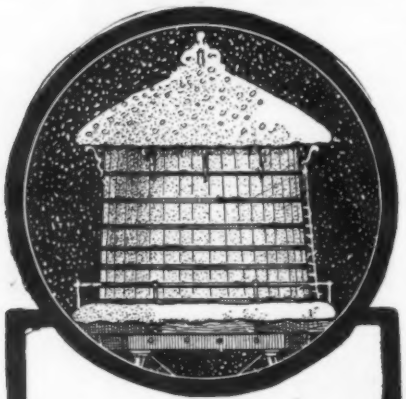

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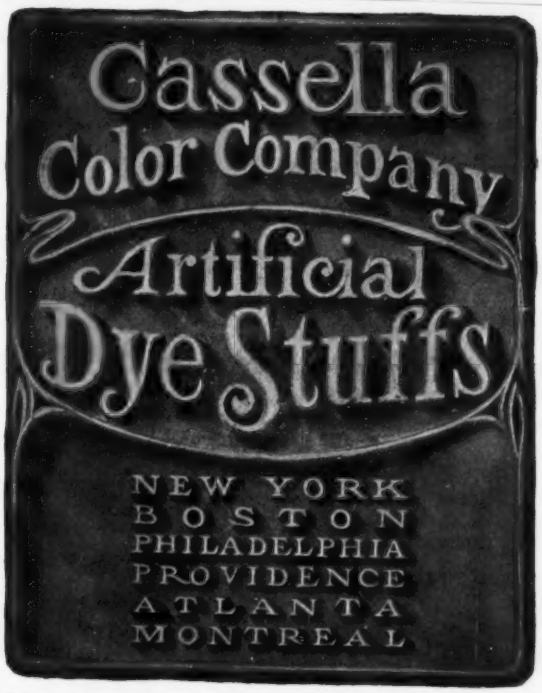

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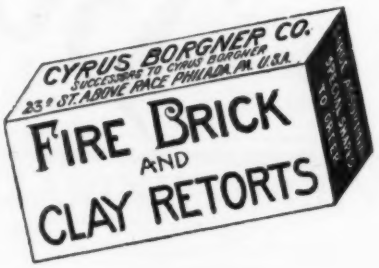

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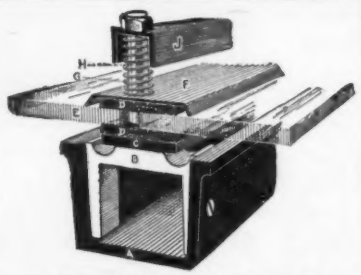

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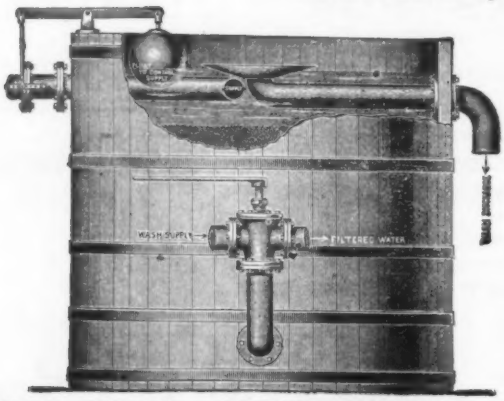

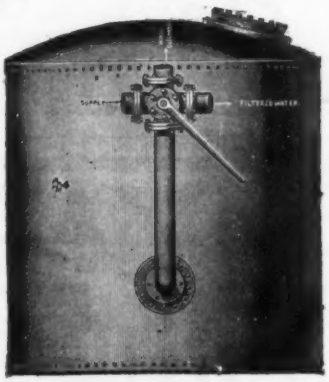

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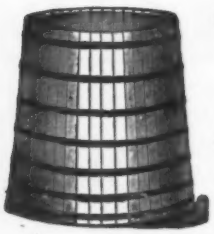

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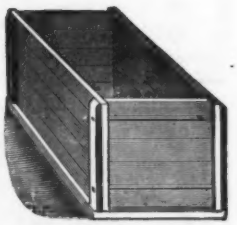

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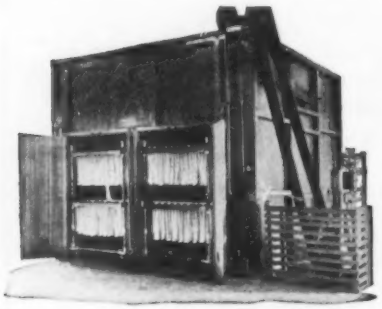

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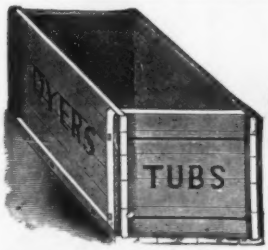

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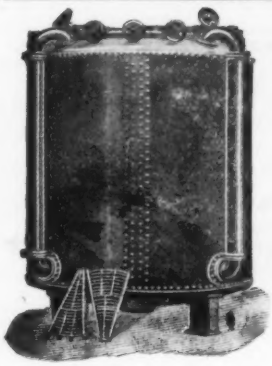

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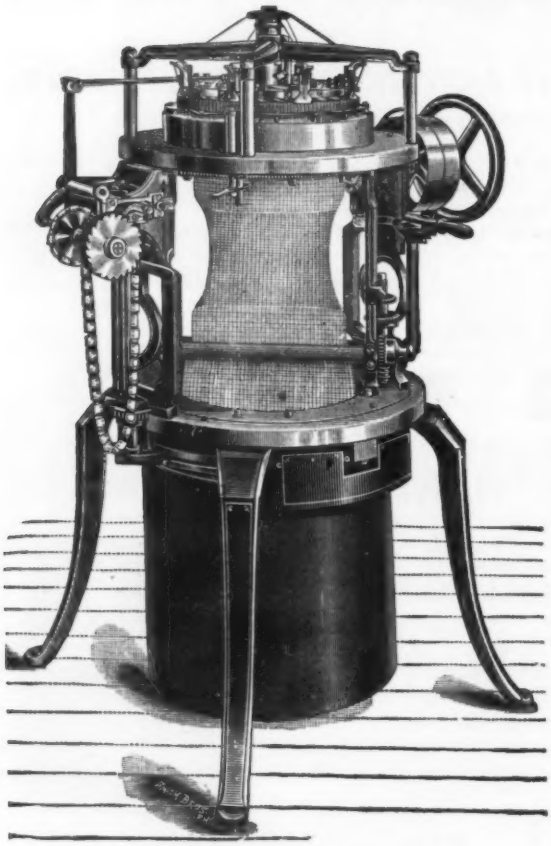
For all classes of Ribbed Hosiery and Underwear, Combination Suits, Sweaters, etc.



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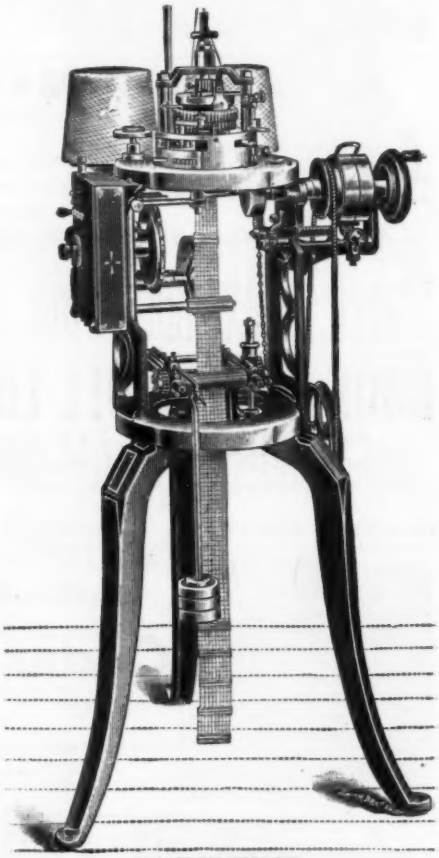

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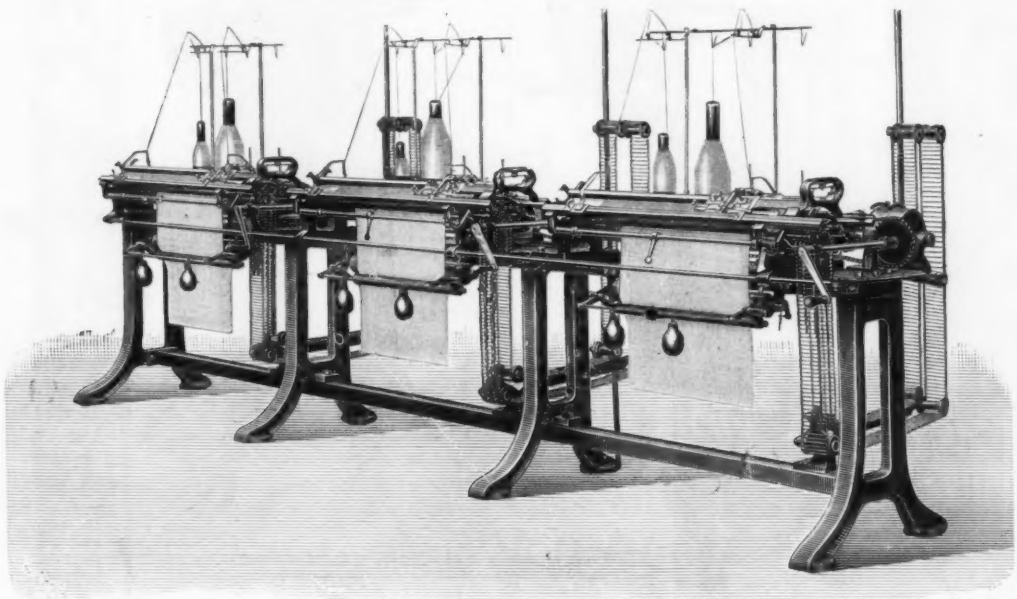

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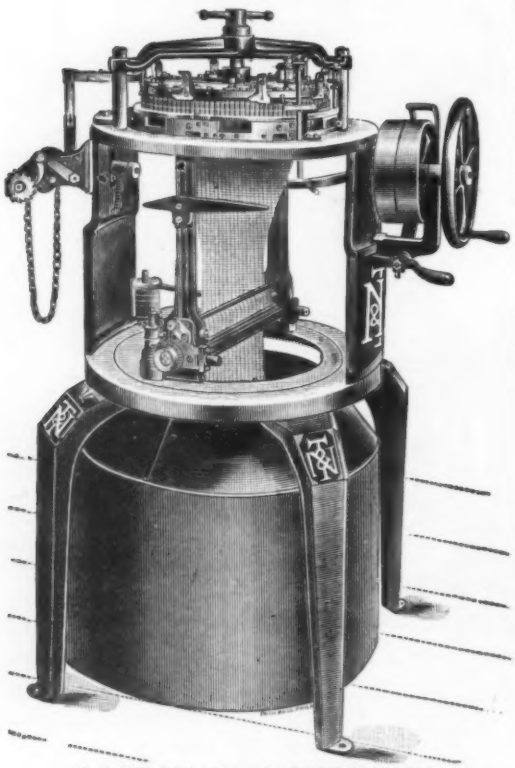

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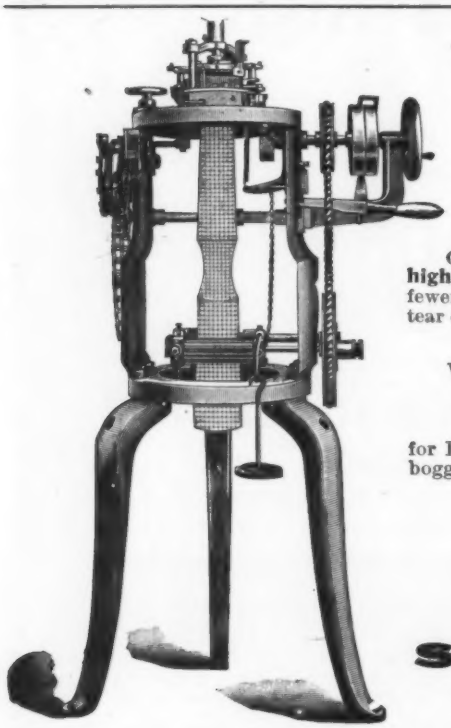

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Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

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(Trade Mark) (Pat. April 5, 1892)

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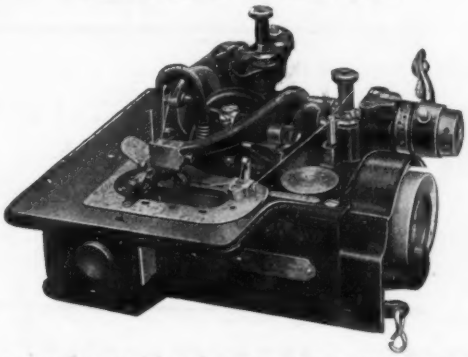

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FOR ANY ARTICLE THAT IS KNIT

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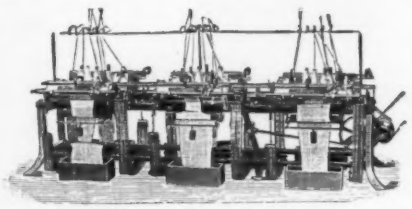

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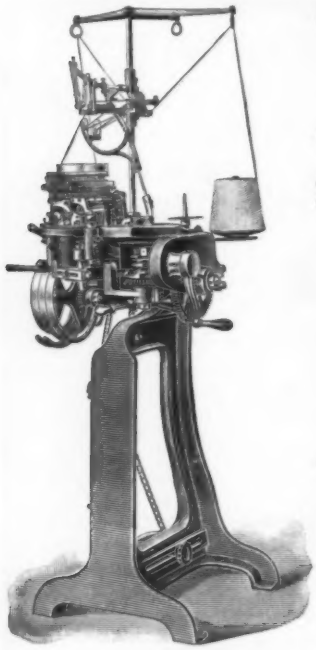

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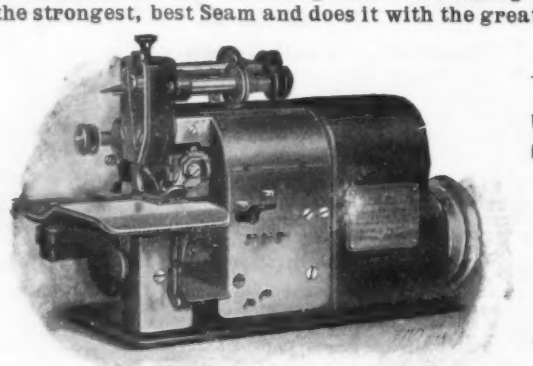

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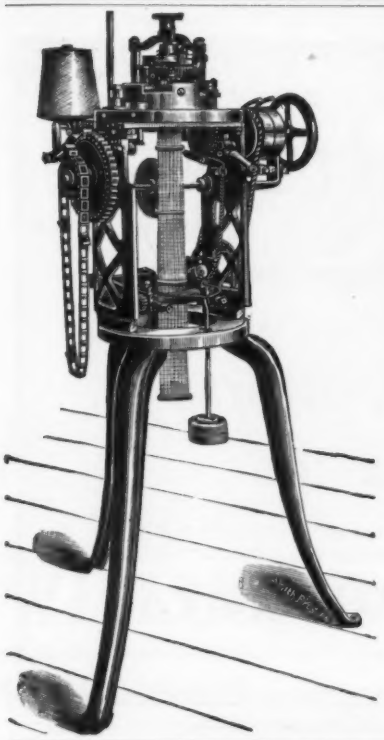

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Knitting Machinery

For HOSIERY and UNDERWEAR.

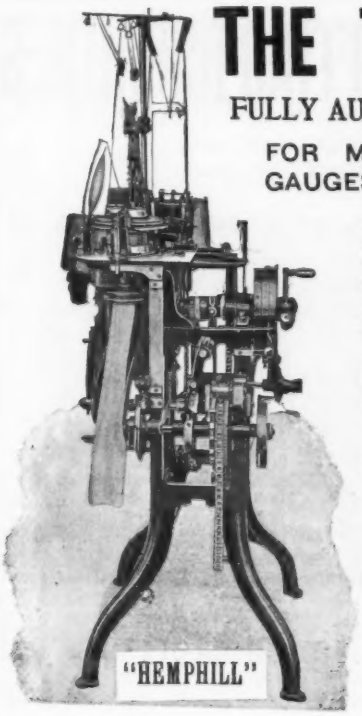
Complete Estimates Furnished. Send for Particulars.

The cut shows our **Improved Automatic Ribber** with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

THE TWO LEADERS

FULLY AUTOMATIC HOSIERY KNITTERS

FOR MAKING ALL KINDS AND GAUGES OF SEAMLESS HOSIERY



One with **GEARS**, the other with **CHAIN** for pattern mechanism, to meet the various tastes of different manufacturers.

Both used and approved by leading hosiery manufacturers.

Both contain all the well-known essentials demanded of first-class knitting machines.

With these two machines we can supply all manufacturers' possible wants in the best possible manner.

Write us for further particulars and prices.

We also make all kinds of **LATCH NEEDLES.** Many leading manufacturers use our needles and say they are the best on the market. Send us a trial order.

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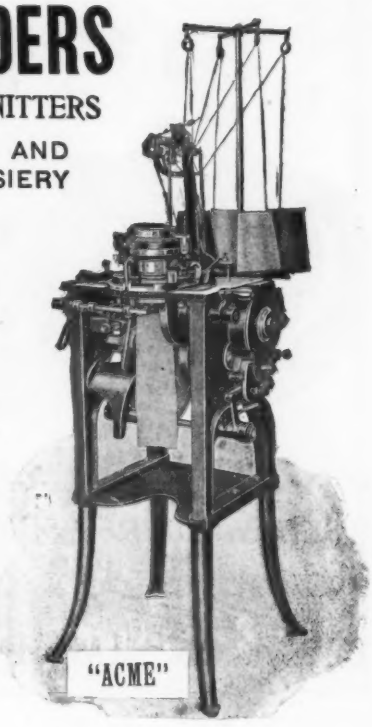
Philadelphia Office, Knickerbocker Bldg., Cor. 6th & Arch Sts.



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ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

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CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

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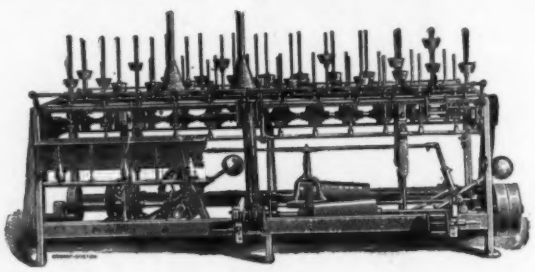
Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



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OVER 1,650 PAYNE WINDERS IN USE

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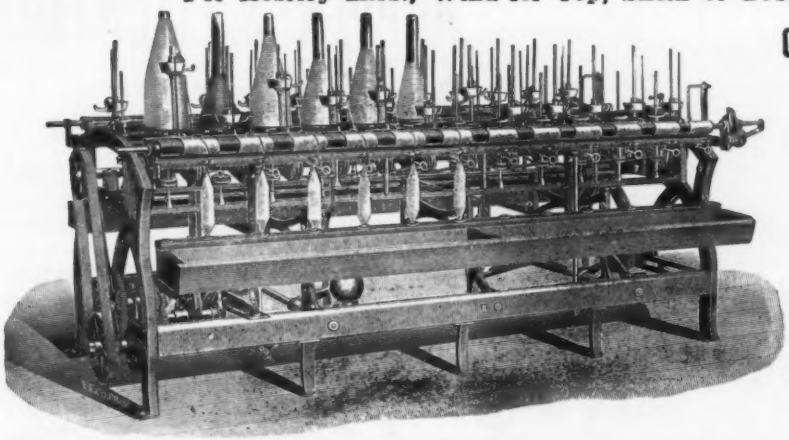

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Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers, for doubling 2, 3, or more ends into one,

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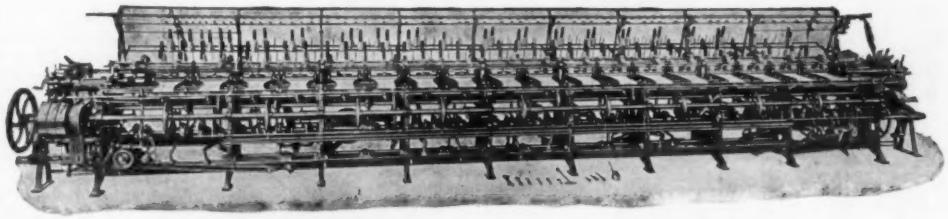

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COTTON SYSTEM, newest construction. The new machine knits the entire hose or half hose complete down to the toe, it makes French heels and French feet.
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RIB MACHINES: Hilscher System, high construction.

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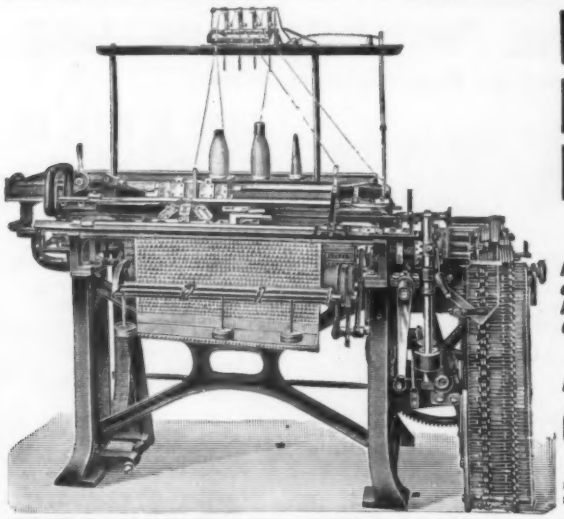

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For High-Grade Sweaters, Jerseys, Etc. in latest plain and colored patterns.

Most durable, simplest construction! Easy to operate and adjust! Recognized as the Best in the market. One operator attends to 3 of these machines! Only reliable machine for above articles.

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GAS ENGINES for city or country
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A Specialty of Hardened Bladed Burr Wheels with Self-Oiling Brackets.

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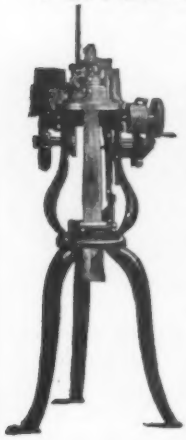

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Automatic Welt and Loose Course Machines for Stock Tops. New Circular Stripers with Welt, Loose Course and Striping (Automatic), for Short Cuffs, Sock Tops, Hose Legs, Wristers, etc.

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ALL KINDS OF

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For Men's Underwear, Ladies' and Misses' Hose Legs and Leggins. Correspondence Solicited.

The New Improved

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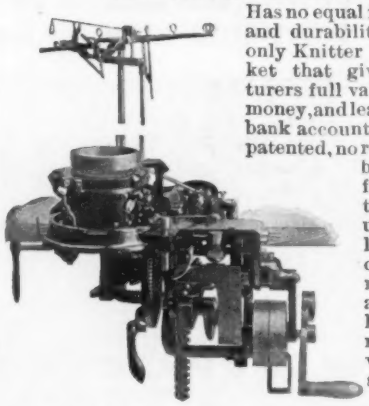

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Original and Still the Best.

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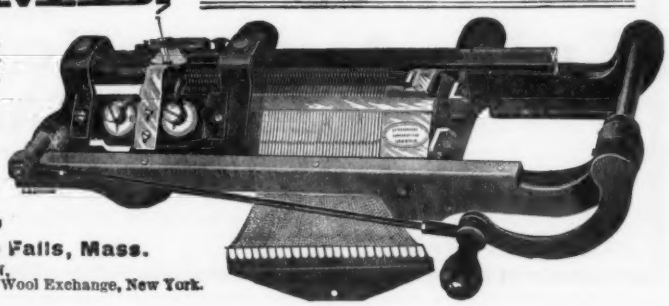

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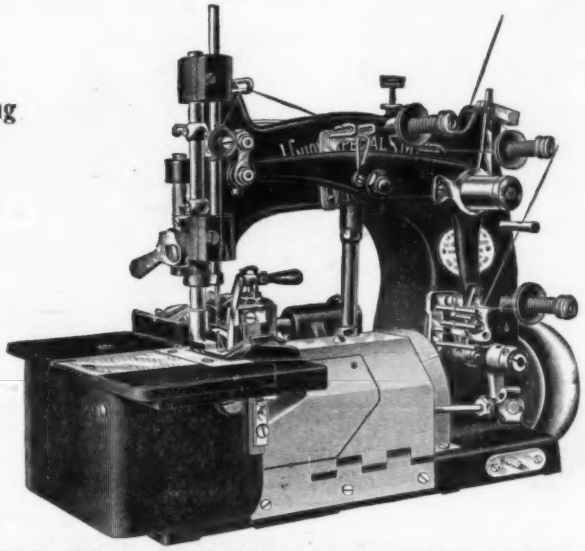

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FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
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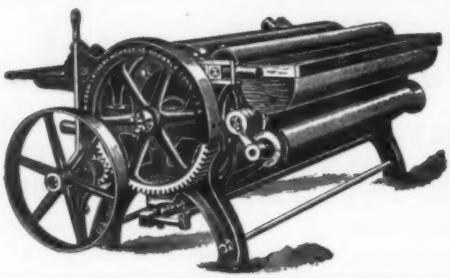

This machine irons and presses ribbed and flat underwear, giving a fine, smooth finish and most attractive appearance to the goods, not to be obtained in any other way. It does not break buttons. Inexpensive and easy to operate, and has large capacity. Knitting mills using them are greatly pleased with results. This method of finishing is sure to come into universal use. Send for further particulars to

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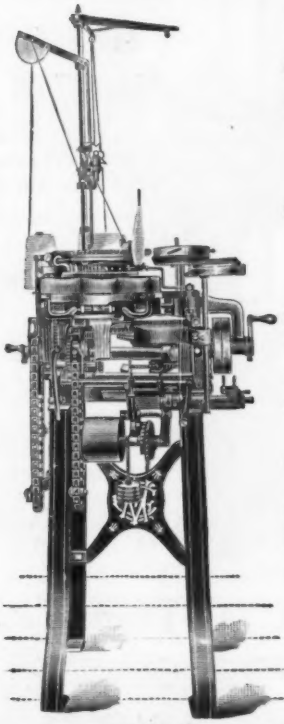
TO BUILD HOSIERY MACHINERY

That's Why There Are More Standards



in use than any other make.

Have you seen the new Standard F?

It will produce from 30% to 50% more goods than any other machine on the market.

Hosiery manufacturers are invited to inspect it in our show rooms.

ARE YOU INTERESTED?

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will cut from the roll, knit fabric into any length from 10″ to 40″ at the rate of 100 pieces a minute. The lengths are accurate, the waste is a minimum, the labor unskilled.

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RUTH RIBBER and STOP MOTION

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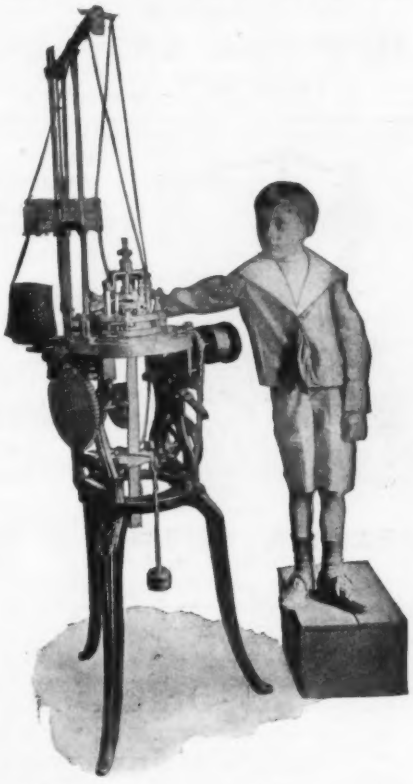

Our RIBBER is high speed, durable, simple and easy to operate, with largest production; single or double feed, plain or fancy stitch for half hose and misses goods. Large loose-course, good round welt, double knee, sleeves or cuffs. Knits wool or cotton yarn, fine or course guage. Hardened cylinders and dials for any make of machine. Best Workmanship. All products guaranteed. Can attach STOP MOTION to any style machine.

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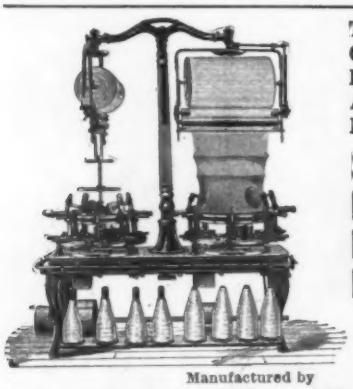

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Thirty-five years' practical experience.

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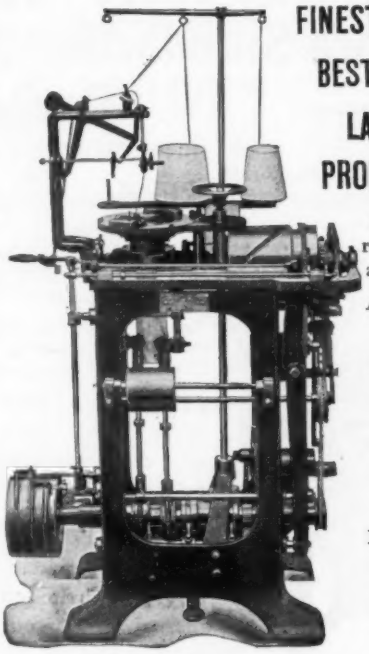

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Greatest Variety of Laces and Novelties.

All automatic.

Lowest Cost for Operating

Also

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In dry goods section is a full list of manufacturers' selling agents and commission merchants handling knit goods, giving the names of the mills for which they sell and the man in charge of the knit goods department.

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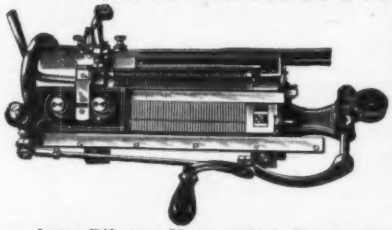

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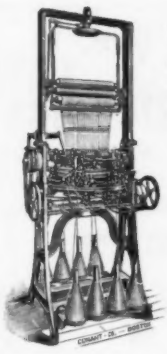

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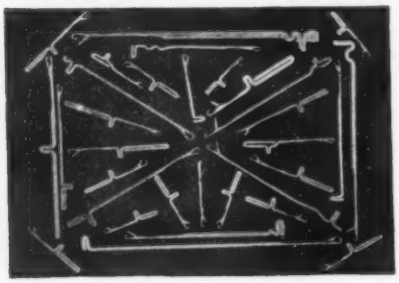

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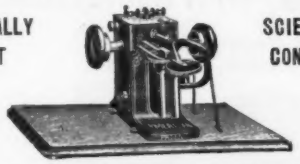

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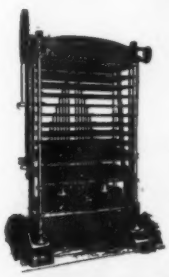

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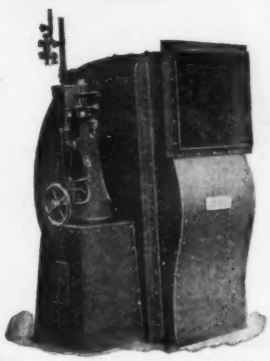

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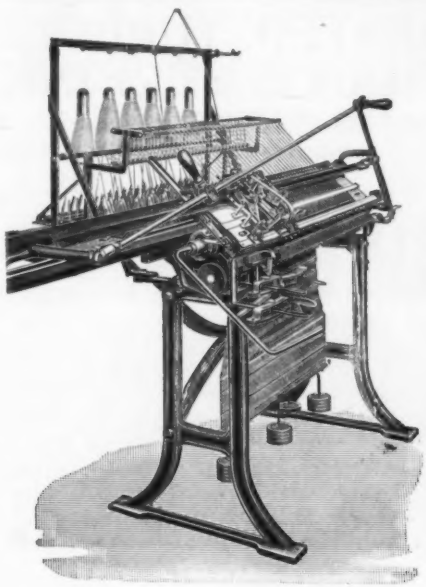

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for hand and power driving, of best quality and perfect construction.

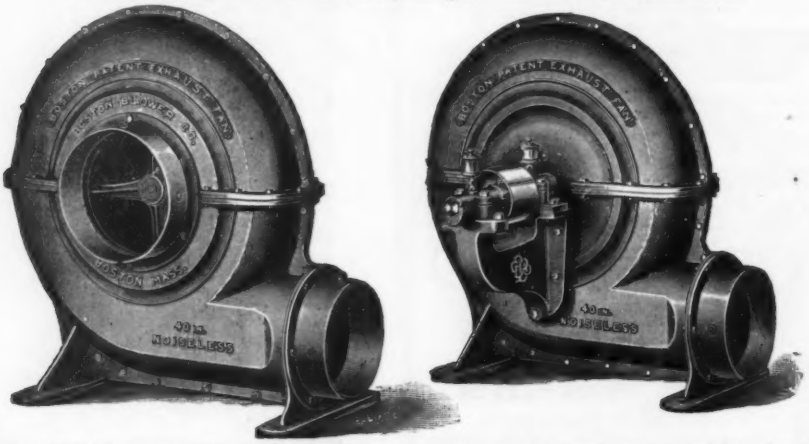
SPECIALTY: JACQUARD MACHINES

for hand and power driving for manufacturing of sweaters and every possible fancy article of that nature.

PRICE LISTS AND SAMPLE ON APPLICATION.

Boston Wool Exhausters, with Removable Tops.

As used in Connection with Pneumatic Conveyor System for Handling Wool, Cotton, Rags, Excelsior, Jute, etc.

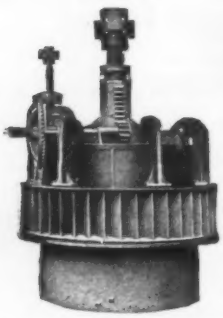


Inlet Side of Right-hand Wool Exhauster. **Pulley Side of Left-hand Wool Exhauster.**

This machine is similar in design to the regular **Boston Patent Exhaust Fan**, but is fitted with a special wheel for handling fibrous materials, and the top is removable.

This latter feature is especially desirable when handling wet or greasy materials or in handling anything, in fact, which would leave a deposit on the inside of fan, as the entire top may readily be removed for inspection or cleaning without disconnecting either pipe or belt connections.

BOSTON BLOWER CO., Main Office and Works: **Business and Glenwood Sts., HYDE PARK, MASS.**



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On Horizontal or Vertical Shafts.

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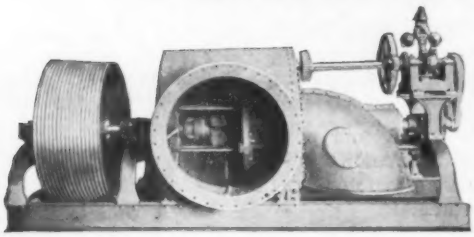

The higher the SPEED of a GENERATOR the LOWER its COST. We can SAVE YOU MONEY if you will use the SAMSON to drive the generator because there is not another turbine built that will attain as quick a SPEED when operating under the same conditions. Write Dept. A-5 for Catalogue.

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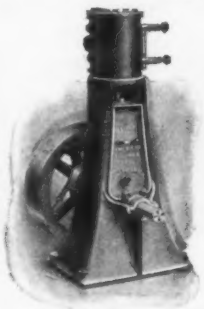
100% *ON INVESTMENT*



Doesn't sound reasonable in connection with a piece of machinery, but the annual saving in cost of operating our TYPE A Engines over others of similar rating, figures out that way. Isn't your curiosity sufficiently aroused to prompt you to ask for Circular No. 185R explaining this? All facts—no fancy theories.

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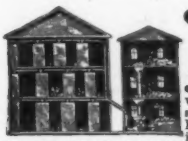

CHARLES H. SCHNITZLER,
Patentee and Sole Manufacturer of
THE PNEUMATIC CONVEYOR
For the handling of wool and cotton stock, rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.
SATISFACTION GUARANTEED. Patented Oct. 15, 1889.
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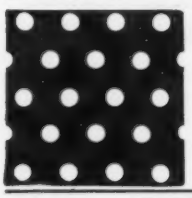

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Perforated Screens of all kinds.
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We Guarantee Satisfaction.
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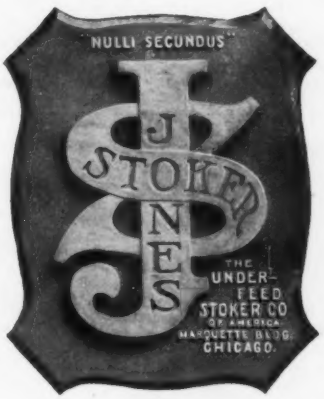
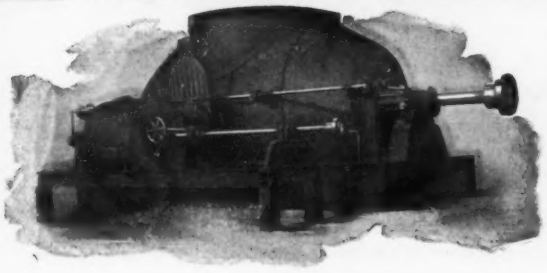


PAIR McCORMICK TURBINES



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Write for Catalogue if contemplating purchase of turbines.

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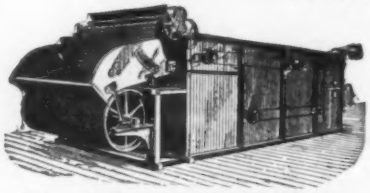
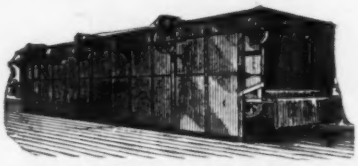
For Cotton Stock, Wool Stock, Rags, Yarn, Cloth, Underwear, Stockings, etc.



Automatic Cotton or Wool Stock Dryer.



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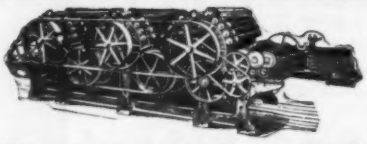

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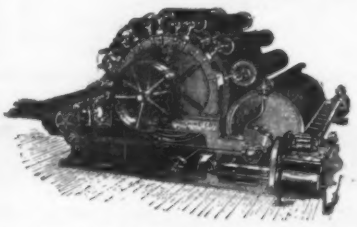
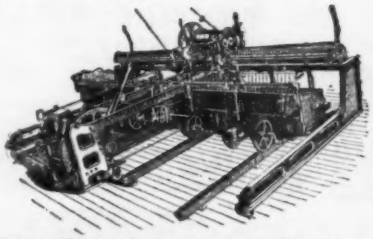
For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



WOOLEN MILL MACHINERY



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Complete Equipment for Manufacturing Cotton Batting for All Purposes.

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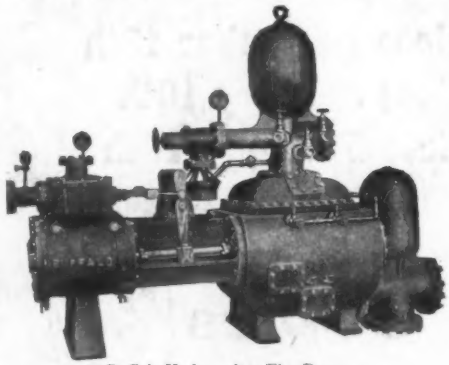

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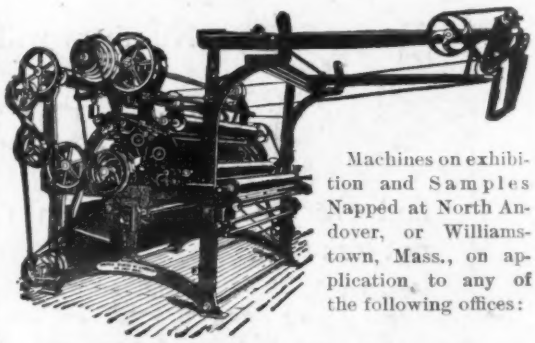

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